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A STUDY OF THE RELATIONSHIP BETWEEN THE USE OF SELECTED
INSTRUCTIONAL PRACTICES AND TEACHER, SCHOOL AND
SYSTEM CHARACTERISTICS

by



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A THESIS

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ABSTRACT

The purpose of this study was to determine whether a relationship exists between the extent of use of selected instructional practices by junior high teachers and certain teacher, school, and system characteristics.

The sample consisted of 960 Alberta junior high school classroom teachers whose major subject area of assignment was either social studies, English, mathematics or science. Data for the present study were taken from questionnaires completed by Alberta teachers in May, 1969, as part of a study directed by Ratsoy for the Alberta Advisory Committee on Educational Studies.

The extent of use of instructional practices by teachers in the sample was measured by means of two instructional practices sub-scales and a Total Instructional Practices Scale. The two sub-scales were employed to measure teacher use of specific types of instructional practices, namely, instructional resources on one hand and organizational practices on the other. The Total Instructional Practices Scale purports to measure the extent to which a teacher made use of all the practices selected for the study.

The statistical treatment of the data included such tests as Pearson product-moment correlations, the stepwise regression analysis and the one-way analysis of variance.

When classified according to personal factors, female teachers were found to score higher than males on both the instructional resource sub-scale and on the Total Instructional Practices Scale. Teachers

under 35 years of age scored higher than older teachers on all three scales.

Teachers in the over fourteen years of experience category scored significantly lower than the less experienced teachers on the instructional resources sub-scale and on the Total Instructional Practices Scale. The mathematics teachers scored significantly lower on all three scales than did the English, social studies and science teachers. Teachers who were highly specialized in terms of having completed eight or more courses in their major subject area of assignment and spending 75 percent or more of their time in this subject area scored higher on the scales measuring extent of use of instructional practices than did teachers who were less specialized.

Teachers in junior high schools, grades 7 to 9, scored higher on all three scales than did teachers in other types of schools. Teachers who taught two hundred or more students in a week scored higher on the organizational practices sub-scale and the Total Instructional Practices Scale than teachers who taught fewer students.

From the results of the analyses it was concluded that the personal variables, age and sex; the professional variables, experience, specialization, and subject area of assignment; and, the system variables, type of school, and number of students taught per week, were related to the extent to which teachers make use of instructional practices in their schools.

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Chapter 1

DISCUSSION OF THE PROBLEM

Social, political and economic pressures have made this an era of great change. Changes which are occurring in society as a whole are having implications for our schools (8:107). One visible effect of these pressures is the demand for dynamic changes in the instructional practices used in schools (10:3). The literature written during the last decade is replete with examples of educators' efforts to meet this demand. A variety of instructional practices have been proposed and several have been adopted in one form or another. The pressure on educational institutions as a whole and more particularly, on the teacher, to use a variety of these new instructional practices has been great.

Much effort has also been expended on researching the instructional practices which are considered to be educational innovations. Carlson, commenting on the vast amount of work done on the innovation process, attributes the major effort to one man:

. . . the study of the spread of educational practices bears the mark of one man. The late Paul Mort and his students seem almost to have cornered the market on studies of the diffusion of educational innovations (3:7).

The majority of these studies, as is pointed out by Rogers, focused on the school system as the unit of analysis (11:39, 40). More recently, studies of innovation in education have used different units as bases for analysis. For example, Carlson (2) investigated the characteristics of

innovative superintendents, Marion (7) and Holdaway (5) studied the innovative elementary school principal, and Yakimishyn (16) focused on the innovative junior high school teacher. Each of these studies used the adoption of newer educational practices as a criterion for innovativeness. There is, however, a lack of research, especially research on a larger scale, on the extent of teacher use of some of the newer instructional practices which are available for use in the classroom.

The present study is such a study of the extent of teacher use of instructional practices. It differs somewhat from earlier innovative studies in education in that the latter have focused on the adoption of instructional practices. However it is similar to a study conducted by Wiens (14) in that Wiens measured innovativeness by the amount of use teachers made of newer teacher practices. More specifically, the present study seeks to determine whether there is a relationship between the extent of use of certain instructional practices and selected characteristics of teachers and of the system in which they work.

THE PROBLEM

Statement of the Problem

The purpose of this study is to determine whether a relationship exists between the extent of use of selected instructional practices and certain teacher, school and system characteristics.

Sub-problems

1. What relationship exists between the extent of use of selected instructional practices by junior high school teachers and certain personal characteristics of these teachers?

2. What relationship exists between the extent of use of selected instructional practices by junior high school teachers and certain professional characteristics of these teachers?

3. What relationship exists between the extent of use of selected instructional practices by junior high school teachers and certain characteristics of the school system in which they teach?

DEFINITION OF TERMS

Instructional Practices

In the present study an instructional practice refers to an instructional resource or an organizational practice which a teacher can use in his classroom instruction or to assist in classroom instruction.

Instructional Resources

The instructional resources chosen for the present study were of two types, namely, human resources and material resources. The human resources consisted of clerical personnel, teacher aides, guidance counsellors, and consultative personnel. The material resources were libraries and instructional material centres.

Organizational Practices

Methods or techniques of arranging students for instructional purposes are referred to as organizational practices in the present study. The organizational practices selected for the present study included team teaching, intra-class grouping, and the project method of instruction. The intra-class grouping practices consisted of grouping by ability and grouping by criteria other than ability.

Instructional Practices Scale

A three point scale referred to as an instructional practices scale was used to measure the extent to which each teacher was making use of the instructional practices selected. This scale is composed of two sub-scales which were designed to measure teacher use of the available instructional resources and teacher use of the selected organizational practices. Moreover, this scale provided three scores for the individual teacher; an instructional resources score, an organizational practices score, and a total instructional practices score.

Variety of Practices Ratio

The variety of practices ratio refers to the ratio of the scores which the individual teacher received on the instructional practices scale to the total possible scores he could have obtained. The study uses two separate variety of practices ratios, VP_1 and VP_2 , and a total variety of practices ratio, VP_T .

The variety of practices ratios, VP_1 and VP_2 , were calculated from the scores which the individual teacher received on the sub-scales designed to measure use of instructional resources and use of organizational practices. The total variety of practices ratio, VP_T , was calculated from the teacher's total instructional practices score.

Teacher Characteristics

Teacher characteristics include both personal and professional attributes which contribute to the description of an individual teacher. The personal characteristics of teachers selected for the present study were age, sex, and marital status. The professional characteristics

selected were years of teaching experience, amount of and recency of post-secondary education, major subject area assignment, degree of specialization, and mobility during teaching career.

System Variables

The characteristics of the system or school in which the teacher works are referred to as system variables in the present study. The system variables selected for the analysis included: the type of school, the size of the school, the type of administrative unit, and number of different students taught per week.

ASSUMPTIONS AND DELIMITATIONS

Assumptions

1. It was assumed that the items of the questionnaire regarding availability and use of instructional practices provided valid and reliable information.

2. It was assumed that an individual teacher who made extensive use of a few instructional practices should receive a rating similar to the rating of a teacher who made limited use of many instructional practices.

Delimitations

1. The present study was delimited to junior high school teachers, teaching grades seven to nine, and giving all or nearly all their time to classroom teaching. Thus principals, vice-principals and other teachers who may have had some teaching duties in junior high school were excluded from the analysis.

2. The study was further delimited to the junior high school teachers whose major subject area assignment was one of the following: mathematics; science; English; or social studies.

3. A further delimitation of the present study concerns the instructional practices selected for the study. These do not include all of the newer instructional practices advocated for use today but are representative of those practices which are familiar to teachers in Alberta. Not included in the study were Educational Television, Individually Prescribed Instruction, Computer Assisted Instruction, and Non-gradedness.

4. A final delimitation of the present study concerns the availability of the selected instructional resources for teacher use. The sample chosen was limited to those junior high school teachers who stated that they had at least four of the six instructional resources available for their use.

IMPORTANCE OF THE STUDY

Educators have reacted to the demand for newer approaches to classroom instruction by experimenting with several new classroom organizational practices. The utilization of team teaching, various grouping procedures, teacher assistants and new technological aids are among the more recent instructional practices advocated to meet the present day objective of individualizing instruction (13:33). Most of these instructional practices are designed to provide a flexible structure in which adjustments by the teacher can easily be made to meet the needs of the individual student.

During the last decade, the American educational scene has been characterized by the adoption and utilization of many new instructional practices. The names of prominent educators such as Trump (13), Goodlad (4), Anderson (1), Shaplin (12) and Heller (6) have been associated with these new practices. Also, financial assistance, in good measure, has been provided for projects utilizing these new practices. For example, the Ford Foundation and the Federal Fund for the Advancement of Education supported over three thousand projects utilizing team teaching in 1963 (15:323). The Federal government of the United States has also given substantial financial support to projects utilizing Teacher Aides (9:2).

The literature on the many new instructional practices has grown. In addition, other writings have concentrated on procedures to use in introducing these new practices. The availability of new instructional resources and of information on newer instructional practices generally,

provide no guarantee that teachers will make extensive use of these newer practices. This is reflected in Koob and Praem's statement concerning the use which teachers make of various practices in the classroom: "With few exceptions the teacher in today's classroom is not performing in a tremendously different way from that of a teacher in 1800, or 1700 either for that matter" (6:1). In addition Trump contends that:

. . . today's teachers represent the only so-called professional group that has not escaped the handwork era. The tools of the typical teacher still include his physical voice and gestures, a chalkboard, and printed materials (13:41).

These statements suggest that there may be less variety in the instructional practices used in the classroom than a review of the current literature might lead one to assume. Also the lack of knowledge about the extent of use of many of these new practices is indicative of a need for more research in this area.

The importance of focusing on the classroom teacher is borne out by comments such as those of Rogers (1962) who reports that in the area of educational innovations only one study had focused on the teacher as the unit of analysis (11:12). In addition, Nussel and Johnson clearly indicate the significance of focusing on the teacher by the following statement:

In the final analysis it is the teacher who decides what to do with a course of study, what content should be utilized in each situation, and what part pupil participation plays in the learning process (10:3).

It appears that the classroom teacher largely controls the decision to use or not to use the instructional practices that are available in the school.

In conclusion the importance of this study may be measured by the

usefulness of the findings to principals, school boards and teacher training institutes. More specifically this study may be of value in the following manner:

1. The principal, as instructional leader of the school, is responsible for providing an effective organization for teaching and learning in his school. A knowledge of the factors affecting teacher utilization of various instructional practices could assist the principal in improving the instructional organization of his school.
2. School board officials, as educational planners may be assisted by the results of this study. More specifically school boards may find information on the effects of types of schools, and sizes of schools on teacher use of instructional practices of use to them in planning and decision-making concerning the provision of these inputs for their educational system.
3. A knowledge of the relationships between the professional characteristics of teachers and their use of instructional practices could be useful information for planners of teacher training institutes. These officials may be able to use such information to prepare programs which would influence teacher use of instructional practices.

OVERVIEW OF THE THESIS

The remainder of the thesis is organized in the following manner. Chapter 2 presents a review of the literature and research reports that are pertinent to the problem of this study. In Chapter 3 a description of the variables and the instructional practices scales used in the study is presented. Chapter 4 contains a description of the sample, correlations of

the teacher and system characteristics and a statistical analysis of the scales used in the study. An analysis of the relationship between teacher use of instructional practices and the selected teacher, school, and system characteristics comprises Chapter 5. The thesis concludes with a summary of the study, a statement of the conclusions reached, and the implications of the study.

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Chapter 2

REVIEW OF THE LITERATURE

In Chapter 1 the problem was outlined and the terms defined. The problem, briefly stated, was to determine whether a relationship exists between the extent of use of a variety of selected instructional practices and certain teacher, school and system characteristics.

This chapter presents a review of writings and research reports that are pertinent to the problem under study. This literature is reported in two parts. The first part deals with the material that has been written on the instructional practices selected for the study. The second part deals with research reports on the relationship between innovativeness and various teacher and system characteristics.

INSTRUCTIONAL PRACTICES

The material in this part is reported in two sections, namely, Instructional Resources and Organizational Practices. The first section deals with paraprofessionals, consultative personnel and resource centres. The second section deals with team teaching, grouping practices and the project method of instruction.

Instructional Resources

Paraprofessionals. The addition of paraprofessional personnel to school staffs has become a popular movement in many school systems.

Paraprofessionals perform numerous non-teaching duties for teachers and are identified by a number of different titles. For example, a study of the utilization of paraprofessionals in Pennsylvania schools reports nine different titles and reveals that these personnel perform a variety of clerical, monitorial, and miscellaneous duties for teachers (41:377). In addition, an article, written by Glovinsky and Johns describing the types of paraprofessionals used in schools, listed a total of twenty-six titles with several duties accompanying each title (20:46-48). In view of the numerous titles which are used to identify paraprofessionals and the variety of duties performed, the review of literature generally refers to both the teacher aides and clerical personnel selected for this study.

Much has been written about the effective use of teacher aides in pilot projects. Thompson writes that teachers express favorable comments about the assistance they receive from teacher aides (62:329). Riley states that teachers believe paraprofessionals provide the avenue for more effective teaching of various groups in the classroom (53:25). Lanza, in a report on a program which utilized teacher aides as house mothers for inner city school children, contends that as a result the gap between these children and the suburban children was narrowed considerably (35:50).

More recent literature written on teacher aides has made similar claims. For instance, Hillenbrand reports that the use of parents as volunteer teacher aides had resulted in an enriched and expanded program for the students (27:156). From the comments made by these writers it appears that the teacher aides are a desirable addition to a staff.

However, a majority of reports such as these have stressed the need for role definition and a program of special preparation for teacher aides.

Some research on the effectiveness of teacher aides has been conducted and reported in the literature. Davis conducted a study which investigated the effects of a teacher aide on the achievement of students who were grouped by ability. He found that the achievement of higher ability students was significantly greater but that the achievement of average and lower ability students was not significantly affected (14:190). Hayden studied the effects of utilizing teacher aides on the attention span of kindergarten and grade one pupils and reported that the attention span increased significantly for the grade one pupils (25:47). In both of these studies the researchers concluded that the teacher aide relieved the teacher of a considerable number of distracting duties thus enabling him to do a more effective job of teaching.

In another study on the utilization of teacher aides, the results were not as favorable. Stafford found that the teacher time spent on non-professional duties decreased significantly but the teacher time spent on professional preparation increased only slightly (60:88).

A survey conducted by the National Educational Association revealed that about 19 percent of the public school teachers in the United States had teacher aide assistance during 1966. In addition this survey revealed that an increasing number of educators were focusing on the development of teacher aide training programs (1:21).

In general the material written and the increasing number of research studies indicate that teacher aides or paraprofessionals are a desirable addition to school staffs.

Consultative personnel. The trend toward increased specialization among educators has been accompanied by the addition of newer specialists to school staffs and central office staffs. Many of these newer professionals have assumed supervisory positions while others have served as resource personnel. Some examples of these specialists are consultants, coordinators, psychologists and guidance counsellors.

Personnel with titles such as coordinators, consultants, supervisors, counsellors and department heads all perform consultative functions to some degree. Lucio and McNeil's definition of a consultant gives some indication of these functions:

A consultant (resource person) is an instructional specialist assigned to promote the improvement of teaching and curriculum by advising with teachers, principals, assistant superintendents, and others. He is especially concerned with the discovery and use of instructional aids, materials, teaching guides, methods of teaching, and resource units (38:24).

This definition appears to identify consultative persons as a type of advisory personnel.

The increasing emphasis on providing for individual needs and the rapidly increasing body of knowledge in education forces teachers to rely on these specialists for assistance. This is evident in Bosdell's statement about consultative personnel at the elementary level:

Currently the elementary school supervisor is seen as assuming responsibility for helping teachers to adapt the curriculum to pupil needs and to provide for follow-up studies of elementary school pupils (50:318).

This statement suggests that teachers cannot be specialists in all areas and need the assistance that consultative personnel can provide.

Promoting the improvement of learning is the major role of consultative personnel. To a certain extent these personnel function as

innovators in that they encourage teachers to adopt new and better instructional practices. Some evidence of their influence on teachers is given in a study of the influence of hierarchical roles on innovations adopted in a school system. Larson reports that department heads were most influential in the initiation and implementation of change, and that guidance counsellors were influential in encouraging or discouraging course innovations and focusing attention on curriculum needs (36:4233). Thus, this study suggests that at least two types of consultative personnel exert influence on the improvement of learning.

The need for consultative personnel in schools is reflected in Wrenn's description of the task of the American teacher:

He is asked to see that each student is a distinct individual who represents the hope of continued progress in the future and who is not submerged in the group. The goal is to understand the various phases of development that affect the student's intellectual growth and to assist him in making appropriate adjustments and choices along the way (64:2).

From this task description it appears that a teacher needs to consult with both subject specialists and guidance specialists if he hopes to adequately provide for student needs.

Other educators cite various developments in society which indicate a need for consultative services in the schools. For instance, Camp, in discussing the need for elementary guidance personnel states: "there are evidences and trends existing in our society today which point to an even greater need for a more general acceptance of guidance services at an elementary level" (50:4). The evidences and trends to which Camp refers are increased enrollments, mobility of the population, conflicting demands of modern society, and changes in family life which are causing

increased maladjustment of pupils as evidenced by the rise in juvenile delinquency rates (50:7).

Traditionally the function of the guidance counsellor was thought to be that of assisting students in making vocational choices and solving problems of adjustment. A more recent approach of the guidance counsellor is through the role of resource consultant. For example, Clark suggests that counsellors should function as resource consultants by doing the following: helping teachers diagnose problems and prescribe instructional remedies; providing extensive and intensive inservice training to teachers on test use and interpretation; advising on curriculum changes that should be made; and, becoming an active member of teams in team teaching enterprises (12:34-36). Thus there tends to be an increasing emphasis on the counsellors' becoming more involved in the instructional program of the school.

Resource centres. The instructional facilities identified as libraries and material centres are referred to as resource centres by many writers. This may be explained by the fact that many schools have one facility which serves both as a library and a materials centre. For this reason, the following summary treats both libraries and materials centres as resource centres. The use of resource centres as part of the instructional program is currently receiving great emphasis. This is evident in many of the curriculum reforms which advocate the use of a wide range of materials not commonly found in the textbooks. Another indication of the perceived need for resource centres is the financial support that has been made available for materials. For example, the Federal Government of the United States has provided up to one million

dollars per state since 1965 for the improvement of libraries and materials centres (4:204).

Much has been written on the need for resource centres and on the use that is made of these facilities. Gaver (19) summarized the findings of research on the importance of the library for the education of students. In his summary he reports that: school libraries were one of five determinants of quality education; the school librarian ranked highest as a needed specialist; and, that a centralized library was a high priority item for elementary schools (19:764). Bond and Smith (4) conducted an extensive survey of schools with libraries to determine the general status of school libraries. These researchers report that on the average, library facilities were inadequate. However, the use of libraries was reported to be quite extensive in that 82 percent of the classes used the library regularly and 66 percent received systematic training in library skills (4:209).

The need for effective use of resource centres by both teachers and students is stressed by many writers. One focus of the literature is on the importance of teaching library skills. For example, Hartz stresses the need for students to know library skills due to the disappearance of the textbook courses and the necessity for information retrieval becoming more and more the responsibility of the individual student (24:201).

Other educators stress the fact that it is the teacher's responsibility to make effective use of the library in order to facilitate the development of the pupil. For instance, Ehrhardt states "perhaps the most important role the teacher is to play is that of a knowledgeable example. If we teachers do not (or cannot) use our libraries, our children will

not" (16:377). In addition, Reed contends that "the key to increased resourcefulness lies in the domain of the total teaching staff. Only the teacher who uses the Material Centre himself can promote pupil development learning" (52:356).

Some writers associate the professional development of teachers with library use by the teachers. For example, James (31) outlines a program in which all of the teachers in a school were involved in reviewing materials, instructing pupils on library use, taking inservice training on library usage and serving as library assistants. The author claims that this program improved the learning conditions in the school in the following manner: "teachers who understand respective roles of classroom and library, design creative assignments which promote rich experience" (31:549). Thus in this case the increased resourcefulness of the teacher was attributed to involvement of the teacher with the library.

The central theme of all the articles reviewed appears to be that the resource centre is an important component of the educational plant. In addition some writers have suggested that the effective use of this facility is a determinant of quality education for the students.

Organizational Practices

In the present study organizational practices refer to methods or techniques teachers may use for grouping students for instruction. Included in the following review are the practices of team teaching, intra-class grouping and the project method of instruction.

Team teaching. Team teaching is an instructional practice which has been utilized by educators in many forms. Carlin, reviewing the many types of teaching teams in practice, states "there are as many types of team teaching as there are school systems that employ it" (8:349). Shaplin attributes the variations in team teaching to such factors as gradedness, departmentalization, available financial resources, autonomy given to the team, space locations and the teachers available (59:17). However, most educators agree that team teaching is a cooperative activity involving the instruction of classes of students by two or more teachers (2:23). In the present study, team teaching is identified as the involvement of teachers in the joint planning and instruction of two or more regular sized classes.

A central aspect of most team plans is flexible grouping (15:562). Anderson contends "team teaching is frequently associated with the use of varying sized instructional groupings, including large groups of 40, 75, 100 or more children on one hand and smaller seminar groups (12-15 pupils) and working groups (5-8 pupils) on the other" (2:26). Shaplin adds that the grouping arrangements of students are determined by student interests, abilities and common purposes (59:18). In addition, Goodlad emphasizes the flexibility of grouping procedures by stating "there is no need for predetermined group structure for more than short periods of time; it shifts according to need and purpose" (21:12). Thus it appears that flexibility in grouping procedures is characteristic of team teaching.

A second attribute of team teaching documented by many educators is the redeployment of staff. Anderson describes structures of teams as

being generally of two types, specifically, hierarchical and semi-hierarchical or cooperative (2:23). Ward, in a survey of teaching teams of western Canada, found that as teams aged they became more structured (63:105). Goodlad contends that:

Complexity can be compounded however until a hierarchy of personnel, leader or coordinator, master teachers, regular teachers, interns, student teachers, aides, clerks, etc., becomes responsible for completely ministering the needs of students comprising many previously separated classes (21:11).

In support of structured teams, Shaplin claims that teams create more attractive teaching careers, recruit aides to relieve teachers from non-professional tasks, and create units of sufficient size to financially warrant the allocation of more technical aids to teaching (56:18). In addition Goodlad points out that members of teaching teams improve professionally by stating: "increasingly they become diagnosticians: they analyze, prescribe, and carry out plans; evaluate, prescribe, and diagnose again" (21:12). From comments such as these it appears that redeployment of staff by teaching teams serves to enhance the individualization of instruction.

The implementation of team teaching has resulted in team teaching acting as a catalyst for needed changes. Evidence of this has arisen from the many experimental projects utilizing team teaching that have subsequently adopted other innovations such as non-gradedness and teacher aides (26:32). Heather contends that this occurs because ". . . cooperative teaching permits great flexibility in scheduling, grouping, uses of space and equipment, and staff utilization" (26:32). Goodlad supports this point of view when he states that "looking into the future of educational practice team teaching opens up the school to further innovation: in school building design, programmed instruction, educational

guidance and computer use" (22:13). Consequently, as well as providing a greater opportunity for individualization of instruction, team teaching appears to act as a vehicle for change.

Research conducted on team teaching has yielded few conclusive results.. In a survey of research conducted prior to 1963, Heathers reports that no significant differences were found in the achievement of students, that pupils did not exhibit any negative effects and that both parents and teachers expressed favorable opinions of team teaching (26:30, 32). In addition Heathers comments on the quality of this research as follows: "most of the research on team teaching has not been well designed and yields only limited and uncertain findings: (22:14).

More recent studies on team teaching have produced similar findings. Brumbach and Osmen (7), Paige (48), and Fraenkel (17) found that the achievement level of students taught by teaching teams was higher but that the difference was not significant. However, Fraenkel found that students received higher marks on examination questions requiring reflection of thought when taught by team teachers (17:45). In each of these studies the achievement of students taught by team teachers was compared to the achievement of students taught by traditional classroom teachers.

In two other studies, researchers report that the relationship between team teaching and pupil growth was positive. Jackson found that a sample of grade five and six classes did significantly better in most subject areas when taught by teaching teams (30:330). Klausmier and Wiersma, grouping junior high school students by ability and studying the effects of team teaching on their progress, found that the achievement of students increased when taught by teaching teams. However, the researchers in this case concluded that team teaching in their study

tended to increase the gap between ability levels which they felt did not help the less able child (33:241).

Only one study was located by the writer that had focused on the teacher, rather than the student, in the analysis. Borg reported on a study in which he examined the characteristics of effective team members. The findings of this study indicated that the effective team teacher was able to adjust well to the cooperative aspect of teaching and tended to spend more time in planning sessions (5:69).

In general, this review of research has produced few conclusive results on the effectiveness of team teaching. However, estimates of the number of school systems in the United States providing team teaching during 1966 indicated a significant involvement of systems in team teaching arrangements. The estimates, made by the National Educational Association, from a survey of systems enrolling three hundred or more pupils, were: team teaching was provided at the elementary level in 14.9 percent of the systems and at the secondary level in 16.2 percent of the systems (44:115). Also, the potential of this practice appeared to be adequately documented by the prominent educators, notably Anderson, Goodlad, Heathers and Shaplin.

Intra-class grouping. The variation of educational attainments among students of any age forces educators to organize students into groups for instruction. The method used for dividing students into groups varies due to differences among individual students and differences among schools. However, most schools group students both vertically and horizontally. (28:6). Students are grouped vertically by a graded, multi-graded or a non-graded system to move them upward from the time of admission

to school until they leave school. The horizontal grouping of students involves the assigning of students to teachers and classes by such criteria as student characteristics, the curriculum, and the teachers available (28:9).

Research conducted on horizontal grouping techniques has primarily focused on inter-class methods of grouping. There is, however, a paucity of research on intra-class methods of grouping as is evidenced in Heather's comment:

The mere handful of studies on intra-class provisions for meeting differences contrasts sharply with the large volume on inter-class grouping. Very likely the explanation is that reliance has usually been placed on structural approaches to meet individual differences rather than on methods of adapting instructional approaches to meet such differences (15:567).

Thus it appears that educators have relied on classroom teachers to differentiate instruction sufficiently to meet the needs of individuals in the inter-class groups.

However, many educators express doubts about how effectively teachers are varying instruction and utilizing innovations to meet individual needs in the inter-class groups. For example, McCulloch cites six different types of intra-class grouping techniques that teachers should use when teaching reading (40:138). In addition, Botel contends that: ". . . most teachers place all students in books at grade level or use standardized test grade equivalent scores as criterion for placement" (6:255). Both educators suggest that teachers generally fail to establish the instructional level of students and as a result they fail to vary instruction to sufficiently meet individual needs.

Other educators question the idea that inter-class grouping

reduces the range of differences sufficiently to enable teachers to meet individual needs. For instance, Betts suggests that within each of the three instructional levels high, medium and low which are formed when students are grouped by ability, five kinds of reading levels actually exist (3:573, 574). The writer in this case feels that teachers must identify these levels and utilize intra-class grouping procedures in order to satisfy individual differences.

The popular method of inter-class grouping by ability has been attacked by Thelen as well. Thelen maintains that: ". . . in a homogeneous ability group the child may not learn more academic content or skills, but he can be much more easily indoctrinated into a particular social position" (61:24). The results of a British study on ability grouping tend to support Thelen's contention. In the British study it was found that a positive correlation existed between children's academic status and their socio-economic status (47:223).

A study conducted on a group of enlisted airmen revealed similar results. The airmen were randomly assigned to classes but were led to believe that they were grouped by ability. The researcher reports that the class who believed that they were of higher ability did significantly better than the other groups. This effect the researcher calls the "labelling effect" of ability grouping (58:51).

Reviews of research on ability grouping done by Passow (28), Goldberg et al. (23) and the National Educational Association (45) have revealed few conclusive results. This is evidenced in Passow's comment that "in search for research findings, the quantity is great (dating back forty years or more), the quality is irregular and the results are

generally inconclusive . . . " (28:37). However, some research findings have indicated that ability grouping tends to be successful when accompanied by a modification of materials, curriculum and methods.

Shrank reports that when ability grouping was accompanied by a modification of curriculum and instruction, the achievement of pupils was significantly higher (57:126). Similar results are reported by Goldberg et al. from a two year study of the effects of ability grouping on a sample of twenty-three hundred grade five students (23:163). Thus both studies support the contention that ability grouping tends to succeed when accompanied by differentiated instruction.

In summary, the research reported on ability grouping has revealed few conclusive results. Secondly, it should be noted that the majority of studies have focused on inter-class ability grouping. In addition there appears to be growing concern about the failure of inter-class grouping practices to meet individual student needs. This is evident in comments such as those made by Thelen, Betts, McCulloch and Botel. Moreover, the increasing involvement of teachers in the team teaching movement, the development of individually prescribed instructional programs, and the utilization of non-graded organizations suggests that intra-class grouping procedures are receiving more attention in schools.

The project method of instruction. The project method of instruction, although not a new instructional practice, is currently receiving a great emphasis in educational writings. This method received its initial emphasis during the first two decades of the century when Dewey's philosophy of education influenced the thinking of educators

(13:2). Dewey stressed involving the child in problem solving, purposeful activity which was reinterpreted by Kilpatrick as the Project method (13:2).

On the other hand, Cowan suggests that the project method even preceded Dewey:

. . . the Project method is, in fact, the oldest method in the world. It has been the primary method of education for human beings through the ages and the means whereby all civilization has come about (13:2).

Thus it appears that the project method is not a new educational practice. However, this method has recently been emphasized with other new instructional practices. For example, the instructional practice of team teaching provides opportunities for students to work on independent projects. This is implied in Chamberlain's description of independent study:

In its broadest sense, independent study can be interpreted as a means of allowing the student to proceed at his own pace in a problematic study which has been formulated, initiated and planned with minimum direct supervision (10:110).

In addition Chamberlain suggests that the student should be responsible for planning much of his activity and setting his own rate of progress (10:110).

Research findings that have been reported on studies of the effects of the project method are rather inconclusive. For instance Wallen and Travers, after reviewing a number of grade school studies reach the following conclusion: "the research evidence, though meagre, is not particularly favorable" (18:433). McKeachie, reviewing the results of seventeen studies on the use of the project method at the college level found similar results. He concludes that:

. . . the paucity of positive results suggests we need more research on methods of selecting and training students for independent study, arranging the independent study, arranging the independent study experience and measuring outcomes (18:1148).

A report on project work in British schools, however, indicates very favorable results. Cowan, reporting on projects which were described as both individual and group projects, contends that the projects had the following effects on the students: an increase in attendance; a positive influence on reading habits; a display of more interest, imagination and industry; a deeper understanding of their work; and a marked improvement in their behavior (13:67, 68). These results suggest that the project method of instruction proved to be successful in this case.

In review, the evidence presented on the project approach revealed that there have been some unfavorable results obtained in experiments with this instructional practice. However, the current interest in providing programs for individual students may result in a greater use being made of the project method of instruction.

Summary

The above review of literature has included a description of the instructional practices selected for the present study. On the basis of the literature reviewed it appears that both team teaching and intra-class grouping are desirable practices for meeting individual needs. The project method of instruction has not been as strongly supported but it appears that it is also a somewhat desirable practice for improving teaching and learning. However, as is evidenced in the literature review, little if any indication is given of the relationship between teacher characteristics and the use of these practices. For this reason, the

ensuing literature on educational innovations deals with research reports on the relationship between teacher and system characteristics and the adoption of newer instruction practices.

ADOPTION OF EDUCATIONAL INNOVATIONS

The material in this part is presented in two sections. The first section deals with the research reported on the relationships between the adoption of innovations and the personal and professional variables of sex, marital status, age, experience and education. The second section deals with the research reported on the relationships between the adoption of educational innovations and the system variables of size, wealth, and specialization.

Personal and Professional Variables

Sex and marital status. The personal variable, sex, has been shown to be a major variable in some education research projects. Ross reports that male teachers improve the innovativeness of the system at the high school level (56:143). Mort and Cornell report a positive correlation between the proportion of male teachers on staff and the innovativeness of the system but they consider the relationship as being not significant (42:272). Charters points out that there are obvious differences in the career patterns of male and female teachers and he urges researchers to take this variable into account in their research (11:184). Finally, Yakimishyn reports that junior high male teachers are more innovative than female teachers (65:139).

The research reported on the relationship between marital status

and innovativeness is rather inconclusive. Ross reports that a large percentage of married teachers in high school provides a better environment for innovativeness (56:143). On the other hand, Mort and Cornell (42) and Yakimishyn (65) report that they found no significant relationship between marital status of teachers and their innovativeness.

Although the review of research on the variables sex and marital status has not revealed any strong directional relationships between these variables and innovativeness there is some indication that these variables may be related to innovativeness. Therefore it appears that these variables warrant inclusion in research projects focusing on the individual.

Age. Several research studies have shown that the variable age is significantly related to innovativeness. However, a comparison of the research reports indicates that there are inconsistencies in the findings. For example, Ross (56), Mort and Cornell (42), and Mort and Ross (43) report that the age of teachers is positively correlated with innovativeness. Other studies conducted by Marion (39), Holdaway (29) and Roosa (55) reveal that the age of the school principal is negatively correlated with innovativeness. Rogers adds to this contradiction of findings when he cites nine studies which reveal that younger age is associated with innovativeness, ten studies showing no significant relationship and three studies in which older age is associated with innovativeness (54:172).

The reports of findings from other studies revealed contradictory results as well. Ramer (51) and Carlson (9) report that innovative superintendents tend to be younger; Lawrence found no association between age and the innovativeness of the superintendent (37:1398); and Yakimishyn

found that the relationship between the age of junior high school teachers and innovativeness was curvilinear (65:135).

In view of the above research findings, it appears that age may be related to innovativeness. However, the exact relationship is difficult to postulate in view of the inconsistencies among the research reports. Perhaps the findings reported by Yakimishyn offer a plausible explanation for this relationship. On the other hand there may be other variables such as experience and training which significantly affect the relationship between age and innovativeness.

Experience. The findings reported by researchers on the relationship between experience and innovativeness are plagued with inconsistencies similar to those of age. For instance, Ross reports that a strong relationship exists between the innovativeness of a system and the teaching experience of the staff up to 35 years in length (56:145). Roosa reports a similar finding in that the experience of the principal on the job is significantly related to the rate of adoption of educational innovations in the school (55:397). However, Peach (49) and Ramer (51) both found that innovativeness is associated negatively with length of term of service.

To add a new perspective to the findings, Yakimishyn reports a curvilinear relationship between experience and innovativeness of the junior high school teacher (65:137). The researcher in this case, however, concludes that these findings were similar to those of age and innovativeness since age and experience of the teachers in his sample were highly correlated (65:137).

The research evidence presented here has suggested that a possible relationship exists between experience and innovativeness. However, as with the variable age, the contradictory nature of the findings reported make it difficult to postulate the direction of this relationship.

Education. The professional preparation of educators has been a popular variable in many research projects in education. Mort and Cornell (42), Ross (56), Mort and Ross (43), Rogers (54), Carlson (9), Peach (49) and Ramer (51) all report significant relationships between amount of education and innovativeness. In addition to length of training, Mort and Ross contend that the percentage of staff members with one or more undergraduate courses in three or more different subject areas is associated with the innovativeness of a school (43:197). Also, Ross identifies five years of training as having the strongest relationship with innovativeness (56:136).

A study conducted by Yakimishyn (65) on the innovativeness of junior high school teachers revealed a strong relationship between training and innovativeness as well. The researcher in this study reports that the relationship tends to be curvilinear in that the more innovative teachers had from three to five years of post-secondary education (65:150).

Recency of training has been reported by a number of researchers to be associated with innovativeness as well. Ross (56) and Carlson (9) both report that recency of training is significantly correlated with innovativeness. Peach reports that there is a significant positive relationship between innovativeness and the amount of recent professional education acquired by a principal (49:104).

The findings reported by researchers on the relationship between training and innovativeness appear to be in more agreement than those reported on other personal variables. In view of the strong agreement among these findings one may conclude that in general the more education an individual acquires the more innovative he will be.

System Variables

Size. A number of studies on the adoption of educational innovations have reported that the system variable, size, is related to innovativeness. For instance, Mort and Cornell reported findings from a study of forty-eight Pennsylvania school districts which indicate that the larger districts are more innovative than the smaller districts (43:58).

Research studies which have focused on the innovativeness of superintendents report similar findings. Carlson (9), Lawrence (37), Kohl (34) and Ramer (51) report that the superintendents of larger districts tend to be more innovative than superintendents of smaller districts.

The findings of studies which focused on the innovativeness of teachers reveal inconclusive evidence. Jenks measuring size by enrollments of the school reports that higher adoption is associated with lower enrollments (32:1475). Yakimishyn measuring size by the number of teachers on staff, reported there was no significant relationship between size of the school and the innovativeness of the junior high school teacher (65:141).

Although most of the studies reviewed indicate that some sort of relationship exists between size and innovativeness, the differences in

the findings make it impossible to identify a common directional relationship. Consequently the only conclusion that can be made at this stage is that it is possible that a relationship does exist between size and innovativeness.

Wealth. The system variable, wealth, was not included as a variable in the present study. However two types of administrative units, namely, city and non-city units were included in the analysis. Since the assessment per pupil is higher in city than in non-city districts in Alberta, one method for predicting possible differences between city and non-city districts is to look at the relationship between wealth of districts and innovativeness. For this reason a review of the research findings on wealth of districts is included in this chapter.

Several research projects have illustrated that the wealth of a school district is an influential variable in the adoption of educational innovations. For instance Ross suggests that the amount of money spent per pupil is associated with the adaptability of the system (56:15). In addition Ross indicates that the richness of a district is a strong correlate of the amount of training teachers have acquired (56:137).

Rogers (54) summarizing research on adoption of innovations in agriculture, industry and education, concludes that there is a strong relationship between wealth and innovativeness. However in discussion of this relationship Rogers comments as follows: "it should be pointed out that while wealth and innovativeness are highly related, economic factors do not offer a complete explanation of innovative behavior (or even approach doing so)" (54:176).

In Carlson's study the variable wealth was found to be not related in a consistent manner to the number of innovations adopted. For example, Carlson found that the correlation between expenditure per child and number of innovations adopted was $-.24$ in one county whereas in the other county the correlation was $+.25$ (9:62). On the basis of these findings, Carlson made the following conclusion:

In respect to the power of the variable of expenditure per pupil to account for rate of adoption and amount of adoption of new educational practices, Ross' statement summarizing past research on adoption of educational innovations is not supported by these data (9:63).

Thus the results reported by Carlson tend not to support the Rogers findings and the Ross contention that wealth is associated with innovativeness.

In a study conducted by Kohl the results were similar to those of Carlson's. Kohl, studied the adoption of innovations by fifty-eight Oregon school districts, and reports that there was no significant relationship between the percentage of innovations adopted and the per pupil expenditure of the district (34:125).

In two more recent studies, however, results in support of Ross's contention are reported. Roosa found that the expenditure per pupil was positively associated with the rate of adoption of educational innovations by school systems (55:3397). Ramer reports that superintendents in districts with a higher per pupil expenditure tend to be more innovative (51:783). Thus, both of these studies seem to indicate that wealth is a significant predictor of innovativeness.

In review, the findings reported by researchers on the relationship between wealth of the school system and innovativeness have indicated

that differences in innovativeness may be due to differences in the richness of school districts. Furthermore, the direction of this relationship appears to be in favor of wealthier districts. Hence, in the present study one might expect that teachers of city administrative units would use a greater variety of practices than teachers of non-city administrative units.

Specialization. The degree of specialization of the unit in which an individual works has been reported by some researchers to be associated with innovativeness. For example Rogers cited three studies in rural sociology where specialization was found to be a correlate of innovativeness (54:177). In the field of education, Ross has suggested that differences in innovativeness are related to differences in types of specialization or to types of school classification (56:109).

In his study focusing on the innovative junior high school teacher, Yakimishyn reports findings which support those cited by Rogers and the differences suggested by Ross. The researcher in this case reports that teachers teaching in junior high schools are more innovative than teachers who teach in elementary-junior high schools (65:139).

SUMMARY

In this chapter a summary of the literature and research reports that are pertinent to the problem of the present study were presented. This summary was presented in two parts. The first part provided a detailed description of the instructional practices which illustrated the need for teachers to use these practices. The second part presented research findings on the relationship between the selected teacher and system characteristics and the adoption of newer instructional practices by teachers.

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Chapter 3

DESIGN OF THE STUDY

A description of the research design is presented in this chapter. Included is a discussion of the following: selection of the sample, the method used to gather the data, the instructional practices, the teacher and system characteristics, and a description of the instructional practice scales used in the present study.

Selection of the Sample

The sample was chosen from a population consisting of all the junior high school teachers of Alberta. The decision for choosing junior high school teachers was based in part on knowledge of the results of earlier surveys on adoption of some of the instructional practices used in the present study and knowledge of some characteristics of the Alberta teachers. For example, in 1966, Ward found that 44.6 percent of the teaching teams in western Canada were at the junior high school level (4:56). In 1967, Yakimishyn, surveying twenty-two junior high schools in the greater Winnipeg area, found that 14.4 percent of the teachers had adopted team teaching, 26 percent had adopted ability grouping and 52.8 percent had adopted the project method of instruction (6:108). The Alberta Teachers' Association published statistics on the Alberta teaching force of 1968-1969 which indicated that the sex distribution of teachers was closest to being equal at the junior high school level (5:36).

The following criteria were used in selecting the sample:

1. The teachers reported spending all or nearly all of their time teaching at the junior high school level.
2. Their major teaching responsibility lay in one of the following subject areas: mathematics; science; social studies; or English.
3. They must have had at least four of the six instructional resources, selected for this study, available for their use.

The first condition was used to obtain a sample of full time junior high school classroom teachers. Other classifications of teachers such as administrators, counsellors, coordinators, librarians and part-time teachers, who reported spending only part of their time teaching junior high school subjects were excluded from the study.

Teachers were selected from the subject areas of science, mathematics, social studies and English, only, for the following of reasons: at least two-thirds of the junior high school teachers of Alberta were teaching in one of these four subject areas; these teachers were fairly evenly distributed among the four subject areas; the content of these subjects is such that teachers can use most of the instructional practices selected for this study; and, the distribution of teachers when classified by sex was more equitable in these four subjects.

The last criterion was used in an attempt to control for the effects that availability of the instructional practices may have on teacher use of these practices. The choice of four of the six instructional resources was assumed to minimize the effects of availability and still produce a sizeable sample of teachers.

INSTRUMENTATION

The data used in the present study were gathered in a study by Ratsoy for the Alberta Advisory Committee for Educational Studies in May of 1969 (3:1). Questionnaires were sent to all the Alberta teachers in order to gather data on the Alberta Teaching force of 1968-1969. The return of questionnaires was estimated at about 90 percent (3:2).

The questionnaire (see Appendix A) contained fifty-nine items which required the respondents to give information on: their personal characteristics; the availability of and the use they made of selected instructional practices; and, the school and school system in which they taught. The questionnaires were machine scored and the data were transferred to computer tapes.

Spot checks were made on a number of items against other sources of the same information. These sources included items of the questionnaire which served as checks on each other and files of the Department of Education. The responses to these items appeared fairly reliable in that they were accurate for about 98 percent of the respondents (2:3, 4).

INSTRUCTIONAL PRACTICES

A total of ten instructional practices were included in the study. Each respondent to the questionnaire was required to indicate which of these practices were available for teacher use in their school and the extent to which he or she used them during the 1968-1969 school term. These practices are identified as:

1. Clerical Personnel
2. Teacher Aides (non-clerical)
3. Guidance Counsellors
4. Consultative Personnel
5. Libraries
6. Instructional Materials Centres
7. Team Teaching
8. Intra-class Ability Grouping
9. Intra-class Grouping by criteria other than Ability
10. The Project Method of Instruction

Data Transformation

The number of response categories for the individual questionnaire items measuring teacher use of the instructional practices ranged from six to eight. These response categories were transformed into three categories which represented "limited use," "some use" and "extensive use" of each of the instructional practices. The purpose of this data transformation was to provide a standardized measure of teacher use of the individual instructional practices, since the numerically measured extent of use differed among several items. The three categories were formed by grouping the questionnaire responses so that the populations in each of the categories were nearly equal. For example item #50 which measured teacher use of ability grouping was transformed as follows:

did not use and used once or twice = limited use

used 3 to 5 times and used 6 to 10 times = some use

used 11 to 20 times and used over 20 times = extensive use

The resulting distribution of responses in the three categories in this case was 309, 322 and 329 respectively.

The transformation of data, for each of the other items measuring use of instructional practices was done in a similar manner. The "limited use" category for each item was formed by grouping the response categories indicating no use and a limited use together. The remaining responses were grouped so that they were approximately equally distributed between the "some use" and the "extensive use" categories of each item.

Variety of Practices Scale

After the data transformation individual items were assigned numerical scores as follows:

1. Zero for "limited use"
2. One for "some use"
3. Two for "extensive use"

Sub-scales. Since the instructional practices selected for this study were of two types, namely instructional resources and organizational practices, two sub-scales were used to measure teacher use of the instructional practices. These two sub-scales comprised the instructional practices scale. Thus for each teacher it was possible to obtain two sub-scale scores and a total score representing the extent of use he or she made of the instructional practices.

The first sub-scale was designed to measure teacher use of the instructional resources selected for the study. Since the use of these depended on their being available in the school, the sub-scale was designed to correct for any differences in the scores due to the avail-

ability or non-availability of these resources. Teachers selected for the sample had at least four of the instructional resources available for their use; they may have had four, five or six resources available for their use. Consequently, the individual teacher's score was out of a total possible of 8, 10 or 12, depending on whether 4, 5 or 6 practices were available for his use in a given school. To correct for these differences, ratios rather than total scores were used in the analysis.

The second sub-scale was designed to measure teacher use of the organizational practices selected for the study. Organizational practices differ from the instructional resources in that each teacher is presumably completely free to use or not use these practices because use does not depend on the availability of special resources in the school or school district. It was therefore assumed that the organizational practices were equally available for use by all teachers. Since there were four such practices included in the questionnaire, each teacher's score on this sub-scale was out of a total of eight.

Calculation of variety of practices ratios. As mentioned above, ratios rather than total scores were used in the analysis. The variety of practices ratio, VP_1 , was computed for the individual teacher from the first sub-scale according to the following formula:

$$VP_1 = \frac{\text{Instructional Resources Score}}{2 \times \text{Number of Instructional Resources Available for Use by that Teacher}} \times 100$$

The variety of practices ratio, VP_2 , for the second sub-scale was computed for the individual teacher by the following formula:

$$VP_2 = \frac{\text{Organizational Practice Score}}{8} \times 100$$

The variety of practices ratio, VP_T , is based on all the instructional practices selected for the study. This ratio was calculated from the score which a teacher received on all ten instructional practices. This ratio was calculated as follows:

$$VP_T = \frac{\text{Total Instructional Practices Score}}{2 \times \text{Number of Instructional Practices Available for Use by that Teacher}} \times 100$$

TEACHER AND SYSTEM CHARACTERISTICS

The teacher and system characteristics selected for the analysis included nine personal and professional characteristics of the teachers, and four characteristics of the system in which they taught.

Teacher Characteristics

The teacher characteristics selected for the present study include the following:

1. Age
2. Sex
3. Marital Status
4. Years of Teaching Experience
5. Years of Post-Secondary Education
6. Recency of Post-Secondary Education
7. Major Subject Area of Assignment
8. Degree of Specialization
9. Mobility during Teaching Career

System Characteristics

The system characteristics include the following:

1. Type of school: a junior high school containing grades seven to nine or, a school containing grades seven to nine and some or all of the other grades.
2. Size of school: measured by the number of teachers on staff.
3. Type of administrative unit: city or non-city administrative unit.
4. Number of different students in a week taught by the individual teacher.

OVERVIEW OF THE ANALYSIS

The information on the teachers in the sample was stored on computer tape. In preparation for the analysis the data were read from the tape, the instructional practices scores computed, and variety of practices ratios calculated. The transformed data were then punched on cards for the analysis.

Pearson product-moment correlations were used to test the relationships between the teacher and system characteristics, and; to test the relationships between the items, the sub-scales, and the instructional practice scale. The probability level of .05 was selected as indicating a significant relationship between the variables.

Stepwise-regression analyses were done using the three scores of the instructional practice scales as criterion variables and the teacher and system characteristics, that were continuous variables, as predictors.

The probability level of .05 was selected as indicating a significant relationship between the criterion and predictor variables.

The relationship between teacher use of the instructional practices and characteristics of teachers and systems was analysed as follows: teachers were classified by each of the dependent variables and mean variety of practices ratios were calculated for each sub-group. Comparisons between the means of the sub-groups were made using the Analysis of Variance technique, as proposed by Ferguson (1:281-323). The level of significance for accepting differences was set at the .05 level of confidence. Where the distributions of the dependent variables departed from normality a more rigorous level of confidence, namely, .025 was employed. This was based on a suggestion by Lindquist:

Accordingly, where marked (but not extreme) heterogeneity is expected, it is desirable to allow for the discrepancy by setting a slightly higher "apparent" level of significance for this test than one would otherwise employ (the "apparent" level being that indicated by the F- table). For example, if one wished the risk of a Type I error to be less than 5%, he might require that the obtained F exceed the 2.5% point in the normal-theory F-distribution. The "apparent" level of significance would then be the 2.5%, but the actual level would be the 5% level (2:83).

In the analysis where two means were compared, a significant F ratio was accepted as indicating a difference between the means. However, on several occasions a comparison of three or more means following a significant F ratio was required. In these cases the Scheffe method by comparing multiple means was used as described in Ferguson (1:296, 197).

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Chapter 4

DESCRIPTION OF SAMPLE AND ANALYSIS OF VARIABLES

Presented in this chapter is a description of the sample by the personal and professional characteristics of the teachers, the characteristics of the system in which they taught, the extent of use they made of each instructional practices and the variety of practices ratios they received on the instructional practices scales. Also included in the chapter are intercorrelations between the teacher and system characteristics, intercorrelations between sub-scale items, sub-scales and the instructional practices scale, and, a stepwise regression analysis of the relationship between the teacher and system characteristics and the variety of practices ratios.

DESCRIPTION OF THE SAMPLE

The sample for the present study was selected from a population of 2,621 Alberta junior high school teachers whose major subject area of assignment was one of: social studies, English, mathematics or science. The sample was further delimited to include only those teachers who had a minimum of four of the following instructional resources available for their use: clerical personnel, teacher aides, consultative personnel, guidance counsellors, libraries, and instructional material centres. Of the 1,064 teachers who remained in the sample, 104 had returned questionnaires which were incomplete. For this reason the number of

teachers in the final sample was 960.

Personal and Professional Variables

Of the 960 teachers in the final sample, 560 were male and 400 were female. When classified according to marital status the distribution was as follows: 237 single; 675 married; 39 widowed, divorced or separated; and, 9 members of a Roman Catholic Religious Order. Table 4.1 gives a summary of the frequency distribution of the teachers in the final sample by sex and marital status.

Table 4.2 gives the frequency distribution of the teachers in the sample by age, by number of years of post-secondary education, and by number of years of teaching experience. The age distribution reveals that more than one-half of the teachers in the sample were under 31 years of age. The range of post-secondary education acquired by the teachers was from less than one year to over six years with a median of 3.9 years. The total teaching experience ranged from one year to over thirty-four years with a median of 5.0 years of experience.

In Table 4.3 appear the frequency distributions of teachers in the sample classified by the major subject field in which they teach, the number of courses they have completed in their major subject area of assignment, and the percentage of time they spend teaching in their major subject area of assignment. The frequencies in the various subject field categories range from a low of 191 which was the number of science teachers in the sample to a high of 318 which was the number of English teachers. The median number of courses completed by the teachers in their major subject area of assignment was 4.5. The distribution of

Table 4.1

Frequency Distributions of Teachers in the Sample
by Sex and by Marital Status

Sex	f	Marital Status	f
Male	560	Single	237
Female	400	Married	675
		Widowed, Divorced or Separated	39
		Members of Roman Catholic Religious Order	9
Totals	960		960

Table 4.2

Frequency Distributions of Teachers in the Sample by Age, Number of Years of Post-Secondary Education, and Length of Teaching Experience

Age		Post-Secondary Education		Teaching Experience	
Range in years	f	Range in years	f	Range in years	f
Under 21	5	Less than 1 year	2	1 year or less	157
21 - 25	301	1 but less than 2	56	2 years	127
26 - 30	270	2 but less than 3	112	3 - 4	174
31 - 35	115	3 but less than 4	129	5 - 9	243
36 - 40	56	4 but less than 5	468	10 - 14	78
41 - 45	54	5 but less than 6	143	15 - 19	65
46 - 55	91	6 or more years	50	20 - 24	47
56 - 65	66			25 - 34	46
over 65 years	2			over 34 years	23
Totals	960		960		960
Medians	28.7		3.9		5.0

Table 4.3

Frequency Distributions of Teachers in the Sample by Major Subject Area of Assignment,
 Courses Completed in Major Subject Area of Assignment and Percentage of Time
 in Major Subject Area of Assignment

Subject Area of Assignment	f	Courses Completed	f	Percentage of Time	f
Social studies	224	1 or less	167	24 or less	19
English	318	2	94	25 - 49	171
Math	227	3	97	50 - 74	333
Science	191	4	130	75 or more	437
		5	93		
		6	81		
		7	75		
		8	223		
Totals	960		960		960
Medians			4.5		71.3

teachers by percentage of time in their major subject area of assignment reveals that the majority of the teachers in the sample taught more than 50 percent of the time in one subject field.

System Variables

A frequency distribution of teachers classified by school size, by school type, and by administrative unit is presented in Table 4.4. The distribution of teachers according to school size indicates that the majority of the teachers taught in schools that had more than twenty-five teachers on staff.

Teachers classified by type of school fall into one of two categories, junior high schools and other types. Four hundred sixty-eight teachers reported that their school was a junior high school which included some or all of the grades 7, 8 and 9. The remaining 492 teachers in the sample reported that they taught in schools containing some of grades 1 to 6 and/or 10 to 12, as well as grades 7 to 9.

The distribution of teachers by administrative unit reveals that 637 teachers taught in city districts and 323 teachers taught in non-city administrative units, that is either counties, school divisions, town districts, village districts or other independent districts.

Use of Instructional Practices

Tables 4.5 and 4.6 show the extent to which teachers in the sample made use of each of the instructional practices comprising the sub-scales. In addition these tables report the average use which was made of each of the instructional practices. Table 4.7 reveals the average use which was made of all ten instructional practices.

Table 4.4

Frequency Distributions of Teachers in the Sample by School Size,
by School Type and by Administrative Unit

Number of Teachers	f	School Type	f	Administrative Unit	f
8 or fewer	10	Junior High	468	City	637
9 - 12	36	Others	492	Non-city	323
13 - 18	125				
19 - 24	206				
25 - 49	572				
50 - 99	11				
Totals	960		960		960
Medians	29.5				

Table 4.5

Extent of Use of Instructional Resources by Teachers in the Sample

Instructional Resources	N ^a	Some Use	Extensive Use	Average Use ^b
Clerical personnel	879	207	70	19.8
Teacher aides	206	52	27	25.8
Consultative personnel	850	363	286	55.0
Guidance counsellors	932	322	368	56.8
Libraries	943	250	443	60.3
Instructional materials centres	518	88	130	33.6
Totals	4,328	1,282	1,324	
Average use of all instructional resources				45.4

^aindicates the number of teachers who reported having the particular instructional resource available for their use

^bThis column indicates the average use of the practice as a percent of total possible use. These figures were calculated by summing the scores received by the teachers on individual items, multiplying by 100, and dividing by the number of resources available.

Table 4.6
Extent of Use of Organizational Practices by Teachers in the Sample

Organizational Practices	N	Some Use	Extensive Use	Average Use ^a
Team teaching	960	144	123	20.3
Intra-class grouping by ability	960	247	235	37.3
Intra-class grouping other than ability	960	322	329	51.0
Project method of instruction	960	318	262	43.9
Totals	3,840	1,031	949	
Average use of all organizational practices				37.9

^aThis column indicates average use of the individual practice as a percent of total possible use. Each figure was calculated as in Table 4.5.

The data in Table 4.5 reveal that the majority of teachers in the sample reported that the instructional resources of clerical personnel, consultative personnel, libraries and guidance counsellors were available for their use. However only 206 and 518 respectively reported that teacher aides and instructional material centres were available for their use. In addition the teachers reported that they used clerical personnel the least and libraries the most.

Table 4.6 reveals that teachers of the sample made greater use of intra-class grouping by criteria other than ability than any of the other instructional practices. The organizational practice of team teaching was used least.

A comparison of the two tables reveals that on the average teachers in the sample made more use of instructional resources than organizational practices. Of the ten instructional practices listed in the two sub-scales the two which teachers used most frequently were libraries and guidance counsellors. In addition Table 4.7 indicates that the average use of all ten instructional practices was 41.6 percent.

Variety of Practices Ratios

In the present study teacher use of instructional practices was measured by two sub-scale scores and a total score. The nature of some of the instructional practices was such that teacher use depended on the availability of the practices. For this reason ratios were employed to correct for any differences in use due to the availability or non-availability of these instructional practices. Thus the variety of practices ratios, VP_1 and VP_2 , were calculated from the scores which teachers

Table 4.7
Extent of Use of Ten Instructional Practices
by Teachers in Sample

	N	Some Use	Extensive Use	Average Use ^a
Ten instructional practices on Total Instructional Practices Scale (VP _T)	8,169	2,313	2,273	41.6

^aThis column indicates the average use of all the instructional practices as a percent of total possible use. This figure was calculated as in Table 4.5.

received on the instructional resources sub-scale and the organizational practices sub-scale. The variety of practices ratio, VP_T , was similarly calculated from the score a teacher received on the instructional practices scale.

Instructional resources. The frequency distribution of teachers in the sample by the amount of use they made of the instructional resources available in their school is reported in Table 4.8. This table reveals that the distribution of the variety of practices ratios (VP_1) derived from the instructional resources sub-scale tended to be positively skewed. Teachers in the sample had a mean variety of practices ratio of 45.4 on this sub-scale.

Organizational practices. Table 4.9 indicates that the distribution of the variety of practices ratios (VP_2) derived from the organizational practices sub-scale was positively skewed and tended to be bi-modal. The mean variety of practices ratio obtained on this sub-scale was 37.9. Thus, on the average, the teachers in the sample tended to use a smaller proportion of the organizational practices chosen for the study and a greater proportion of the instructional resources.

Instructional practices scale. The variety of practices ratios (VP_T) derived from the instructional practices scale were approximately normally distributed, but the distribution was positively skewed as is seen in Table 4.10. The mean variety of practice ratio (VP_T) for the teachers in the sample was 41.6.

A comparison of the three tables reveals that the mean variety of practices ratio for the instructional practices scale falls between

Table 4.8

Frequency Distribution of the Variety of Practices Ratios
on Instructional Resources Sub-scale (VP₁)

Variety of practices ratios ^a	f
81 - 100	44
61 - 80	222
41 - 60	242
21 - 40	320
0 - 20	132
Mean = 45.4	Median = 46.5
	S. D. = 21.8

$${}^a_{VP_1} = \frac{\text{Instructional resources score}}{2 \times \text{number of instructional resources available to that teacher}} \times 100$$

Table 4.9

Frequency Distribution of the Variety of Practices Ratios
on Organizational Practices Sub-scale (VP₂)

Variety of practices ratios ^a	f
81 - 100	64
61 - 80	179
41 - 60	135
21 - 40	325
0 - 20	132
Mean = 37.9	Median = 35.8
	S. D. = 26.6

$${}^a_{VP_2} = \frac{\text{Organizational practices score}}{8} \times 100$$

Table 4.10

Frequency Distribution of the Variety of Practices Ratios
on Total Instructional Practices Scale (VP_T)

Variety of practices ratios ^a	f
81 -- 100	30
61 -- 80	174
41 -- 60	282
21 -- 40	314
0 -- 20	160

Mean = 41.6

Median = 42.1

S. D. = 20.0

$${}^a_{VP_T} = \frac{\text{Total instructional practice score}}{2 \times \text{number of instructional practices available to that teacher}} \times 100$$

the means of teachers on the two sub-scales. This was to be expected since the total scale is a composite of the two sub-scales. On the other hand the number of teachers receiving variety of practices ratios of sixty-one or greater was somewhat less on the instructional practices scale than on either of the two sub-scales. This gives some indication that the two sub-scales are not measuring the same thing; obviously not all teachers who made extensive use of a great variety of instructional resources also made extensive use of a great variety of organizational practices.

RELATIONSHIPS BETWEEN TEACHER AND SYSTEM CHARACTERISTICS

Table 4.11 is an intercorrelation matrix of the teacher and system characteristics that were continuous variables. The data in Table 4.11 reveal that the correlations between the variables ranged from -0.436 to 0.748. Age and experience appear to be strongly related as indicated by the relatively high coefficient of 0.748. The amount of training and the number of courses a teacher has completed in his major subject area of assignment are positively associated as well. A relatively high negative relationship exists between the recency of training by full time attendance at university and their experience.

In conclusion, although many of the correlations between the variables are significant, they are on the average quite low. Thus with the exception of the variables discussed above, it appears that the continuous teacher and system characteristics selected for the study are largely unrelated to each other.

Table 4.11

Intercorrelation Matrix of Nine Teacher and System Characteristics^a

Variables	1	2	3	4	5	6	7	8	9
1. Age	1.000	0.748 ^b	-0.059	-0.436 ^b	-0.087 ^b	-0.146 ^b	0.048	-0.003	-0.065
2. Experience		1.000	-0.162 ^b	-0.397 ^b	-0.159 ^b	-0.237 ^b	0.032	-0.021	-0.043
3. Amount of Training			1.000	0.110 ^b	0.068 ^c	0.483 ^b	0.140 ^b	0.148 ^b	0.148 ^b
4. Recency of Training (full-time)				1.000	0.171 ^b	0.125 ^b	-0.040	-0.026	0.034
5. Recency of Training (part-time)					1.000	0.152 ^b	-0.042	-0.020	0.099 ^c
6. Courses in Major Subject Area Assignment						1.000	0.128 ^b	0.087 ^c	0.073 ^c
7. Percentage of Time in Major Subject Area							1.000	0.188 ^b	0.186 ^b
8. Size of School								1.000	0.190 ^b
9. Number of Students Taught per Week									1.000

^aonly the teacher and system characteristics that are continuous variables are included^bindicates significance at the .001 level of confidence^cindicates significance at the .05 level of confidence

RELATIONSHIPS BETWEEN SUB-SCALES, SUB-SCALE ITEMS AND TOTAL INSTRUCTIONAL PRACTICES SCALE

The correlations between sub-scale scores and the total scores are shown in Table 4.12. Also included in Table 4.12 are percentages representing the amount of variance which the scales have in common.

The relatively low correlation between the sub-scales indicates that teachers who have made extensive use of instructional resources tended not to make extensive use of organizational practices. To illustrate, the coefficient between VP_1 and VP_2 is 0.384. This means that only 15 percent of the variance of these two measures is in common. In other words the sub-scales each probably measure a different dimension of instructional practice usage. Thus this finding supports the employment of sub-scales to measure the extent to which the teachers in the sample used the instructional practices.

The correlation coefficients between each sub-scale and the instructional practices scale were relatively high as would be expected, since the instructional practices scale is a composite of the two sub-scales.

The intercorrelation Tables 4.13 and 4.14 show the correlation between item scores and, sub-scale ratios and the instructional practices scale ratios. All of the items making up the sub-scales correlate significantly at or beyond the .001 level with their respective sub-scale variety of practices ratios; these correlations ranged between 0.142 and 0.722. The correlations between sub-scale items and the instructional practices scale variety of practices ratios were also significant at or

Table 4.12

Intercorrelation Matrix of Variety of Practices Sub-scale
Ratios and Total Variety of Practices Ratios^a

	VP ₁	VP ₂	VP _T
Instructional resources - VP ₁	1.000	$\frac{0.384}{(14.7\%)}^b$	$\frac{0.811}{(65.8\%)}^b$
Organizational practices - VP ₂		1.000	$\frac{0.849}{(72.1\%)}^b$
Total Variety of Practices Scale - VP _T			1.000

^aall the correlation coefficients were significant at the .001 level of confidence

^bpercentages indicate the amount of variance the scales have in common

Table 4.13

Intercorrelations between Instructional Resources Sub-scale Items
and the Variety of Practices Ratios VP_1 and VP_T

Sub-scale items	N^a	VP_1^b	VP_T^b
1. Clerical personnel	879	$\frac{0.436}{(19.0\%)}^c$	$\frac{0.336}{(11.3\%)}^c$
2. Teacher aides	206	$\frac{0.142}{(2.0\%)}^c$	$\frac{0.178}{(3.2\%)}^c$
3. Consultative personnel	850	$\frac{0.527}{(27.8\%)}^c$	$\frac{0.397}{(15.8\%)}^c$
4. Guidance counsellors	932	$\frac{0.512}{(26.0\%)}^c$	$\frac{0.408}{(16.6\%)}^c$
5. Libraries	943	$\frac{0.612}{(37.5\%)}^c$	$\frac{0.533}{(28.4\%)}^c$
6. Material centres	518	$\frac{0.337}{(11.4\%)}^c$	$\frac{0.348}{(12.1\%)}^c$

^a indicates the number of teachers who had the instructional resource available for their use

^b All of the correlations reported are significant at or beyond the .001 level of confidence.

^c percentages indicate the amount of variance the items and scale have in common

Table 4.14

Intercorrelations between Organizational Practices Sub-scale Items
and the Variety of Practices Ratios VP_2 and VP_T

Sub-scale Items ^a	VP_2^b	VP_T^b
1. Team teaching	$\frac{0.564}{(31.8\%)}^c$	$\frac{0.477}{(22.8\%)}^c$
2. Intra-class ability grouping	$\frac{0.722}{(52.1\%)}^c$	$\frac{0.589}{(34.6\%)}^c$
3. Intra-class grouping other than ability	$\frac{0.722}{(52.1\%)}^c$	$\frac{0.634}{(40.2\%)}^c$
4. Project method of instruction	$\frac{0.674}{(45.2\%)}^c$	$\frac{0.579}{(33.5\%)}^c$

^aIt is assumed that all the teachers of the sample have these instructional practices available.

^bAll the correlations reported are significant at or beyond the .001 level of confidence.

^cpercentages indicate the amount of variance scale items and scale scores have in common

beyond the .001 level; correlations between items and total scores ranged between 0.178 and 0.634.

In general, it may be concluded that the instructional practices composing the instructional practice scale appear to measure the extent of use of instructional practices by teachers in the sample. In addition the significant and relatively high correlations between the items and their respective sub-scale support the use of these sub-scales in the present study.

RELATIONSHIPS BETWEEN VARIETY OF PRACTICE RATIOS AND TEACHER AND SYSTEM CHARACTERISTICS

A stepwise regression analysis was used to test the relationship between each of the variety of practice ratios and the selected teacher and system characteristics. For this analysis the criterion variables were the three variety of practice ratios, VP_1 , VP_2 , and VP_T . The predictor variables were the teacher and system characteristics.

In Tables 4.15, 4.16 and 4.17 the results of the analysis are presented for the variety of practice ratios VP_1 , VP_2 , and VP_T , respectively. An examination of the results of the regression analysis reveals that only a small amount of the variance in the use of instructional practices was accounted for. Thus the greatest amount of variance that could be accounted for by the selected teacher and system characteristics was about 6 percent for the present study.

Table 4.15

Results of Regression Analysis of Variety of Practices Ratio, VP_1

Order of entry in regression analysis	Variable name	Percent of variance accounted for	Significance
1	Experience	2.020	.001
2	Sex	2.884	.01
3	Number of courses completed in major subject assignment	3.642	.01
4	Type of school	4.223	.05
5	Number of different pupils taught	4.813	.05

Table 4.16

Results of Regression Analysis of Variety of Practices Ratio, VP_2

Order of entry in regression analysis	Variable name	Percent of variance accounted for	Significance
1	Type of school	1.681	.001
2	Number of courses completed in major subject assignment	2.934	.001
3	Recency of part-time university attendance	3.678	.01
4	Age	4.157	.05

Table 4.17

Results of Regression Analysis for Variety of Practices Ratio, VP_T

Order of entry in regression analysis	Variable name	Percent of variance accounted for	Significance
1	Number of courses completed in major subject assignment	1.715	.001
2	Type of school	3.098	.001
3	Age	4.364	.001
4	Sex	5.209	.05
5	Recency of part-time university attendance	5.639	.05
6	Number of different pupils taught	6.087	.05

SUMMARY

Presented in the present chapter was a description of the sample and intercorrelations between the variables selected for the study. Teachers in the sample were described by selected personal, professional and system characteristics as well as by the use they made of the instructional practices selected for the present study. The relationships between the teacher and system variables, and between the scales for measuring use of instructional practices were tested by means of Pearson product-moment correlations.

The majority of teachers in the sample were married, under 35 years of age, and taught in city schools with twenty-four or more teachers on staff. There were more male than female teachers in the sample. Nearly one-half of the teachers had four but less than five years of training and a similar proportion had less than five years of experience. The teachers in the sample were fairly evenly distributed among the four subject areas of social studies, English, mathematics and science, and between the two types of schools, junior high schools and others. Finally when described by the number of courses they had completed in their major subject area of assignment approximately equal numbers of teachers fell into each of the eight categories.

The teachers in the sample tended to make greater use of the instructional resources and less use of the organizational practices. When classified by the use of each of the ten instructional practices, teachers used libraries and guidance counsellors most and clerical aides and team teaching least.

The chapter concluded with a discussion of the relationships between the variables selected for the study. Intercorrelations between the teacher and system variables revealed that these variables were largely unrelated with the exception of age and experience. The intercorrelations between the sub-scales, sub-scale items, and the total score indicated that items were highly correlated with sub-scale scores and the total score, and that the correlation between sub-scales was .38. Thus the use of the instructional practices scale and sub-scales was statistically supported. Finally, the stepwise regression analysis revealed that at most 6 percent of the variance of the use of instructional practices could be accounted for by the selected teacher and system characteristics.

Chapter 5

ANALYSIS OF RELATIONSHIP BETWEEN EXTENT OF USE OF PRACTICES AND TEACHER AND SYSTEM CHARACTERISTICS

In the present chapter the results of the analysis are reported. Teachers in the sample were categorized into various sub-groups by the teacher and system characteristics and mean variety of practices ratios were calculated for each sub-group. Differences between the means of the sub-groups on each of the instructional practices scales were tested by the one-way analysis of variance technique.

PERSONAL VARIABLES AND EXTENT OF USE OF INSTRUCTIONAL PRACTICES

The personal variables selected for the present study included sex, marital status and age. The following analysis seeks to answer the sub-problem of:

Sub-problem 1: What relationship exists between the extent of use of selected instructional practices by junior high school teachers and certain personal characteristics of these teachers?

Sex

Findings. In Table 5.1 the mean variety of practices ratios of male and female teachers are reported. Significant F ratios were obtained on one sub-scale and on the total score. Female teachers scored significantly higher on the instructional resources sub-scale (VP_1) and the total

scale (VP_T).

Discussion. The significant differences found between the male and female teachers, on the sub-scale (VP_1) and on the total score, add support to Charters' contention that researchers should include the sex variable in research projects. On the other hand this finding is not consistent with Ross' findings that the adaptability of a school is positively associated with the proportion of male teachers on staff (supra: 30).

Table 5.1

Relationship between Sex and Use of
Instructional Practices

Sex	N	VP_1 mean	VP_2 mean	VP_T mean
Male	560	43.9	37.3	40.5
Female	400	47.5	38.8	43.2
F ratio		6.40	0.81	4.21
Significance		.05	NS	.05

Marital Status

The teachers of the sample reported their marital status as follows: single; married; widowed, divorced or separated; and members of a Roman Catholic Religious Order. For purposes of analysis these four categories were collapsed into the two categories of single and married. Thus, members of Roman Catholic Religious Orders were treated as single; those who were widowed, divorced or separated because they had been married at one time were treated as married.

Findings. In Table 5.2 the mean variety of practices ratios of single and married teachers are reported. There were no significant differences between the two categories of marital status on either of the two sub-scales or on the total score.

Discussion. These findings reveal that for this sample no relationship exists between marital status and the extent of use of instructional practices as the latter was measured in the present study. Thus, the evidence of the present study tends to be similar to the findings on the relationship between marital status and the adoption of educational innovations reported in studies by Mort and Cornell, and Yakimishyn (*supra*: 31).

Table 5.2

Relationship between Marital Status and Use of
Instructional Practices

Marital status	N	VP ₁ mean	VP ₂ mean	VP _T mean
Single	246	46.8	37.8	42.3
Married	714	44.9	38.0	41.4
<u>F</u> ratio		1.30	0.00	0.41
Significance		NS	NS	NS

Age

For purposes of this analysis the teachers in the sample were classified into three age categories: under 26, 26 to 35, and over 35 years of age.

Findings. The results of the tests of differences between the three age groups of junior high teachers are presented in Table 5.3. The three F ratios computed on the data for these teachers were all significant. The Scheffe method of multiple comparison of paired means was applied and the test showed significant differences at the .001 level between the oldest age category and the other two categories on all three scales.

Discussion. The results of the present analysis indicate that the younger teachers, 35 years of age and under, tend to make greater use of the instructional practices selected. These findings on age are similar to those reported by Ramer and Carlson in their studies on adoption of educational innovations (supra: 31).

Table 5.3

Relationship between Age and Use of
Instructional Practices

Group	Age category	N	VP ₁ mean	VP ₂ mean	VP _T mean
1	under 26	306	47.7	38.9	43.3
2	26 - 35	385	46.9	40.8	43.8
3	over 35	269	40.5	32.7	36.6
	<u>F</u> ratio		9.80	7.59	12.16
	Significance		.001	.001	.001
	Sig. dif. groups		1 and 3 2 and 3	1 and 3 2 and 3	1 and 3 2 and 3

PROFESSIONAL VARIABLES AND EXTENT OF USE OF INSTRUCTIONAL PRACTICES

The professional variables selected for the present study included experience, amount of education, recency of education, specialization, mobility, and subject area of assignment. The following analysis seeks to answer the sub-problem of:

Sub-problem 2: What relationship exists between the extent of use of selected instructional practices by junior high school teachers and certain professional characteristics of these teachers?

Experience

The teachers in the sample ranged in experience from less than one year to over thirty-four years. For this analysis three experience categories were used: 4 years or less, 5 to 14 years and 15 or more years of experience.

Findings. Table 5.4 compares the mean variety of practice ratios obtained by teachers classified according to teaching experience. Significant differences were found on the instructional resources subscale and on the total score. In both cases the teachers with fifteen or more years of experience had a significantly lower mean variety of practice ratio than the two groups of less experienced teachers.

In all cases the ordering of the means was the same. The teacher group with under five years of experience used the greatest variety of instructional practices.

Discussion. The findings on experience are very similar to those found with respect to age. This similarity of findings may be due in large part to the high correlation between age and experience. The correlation between these two variables in the present study was 0.75 (supra: 68).

The absence of significant differences between the groups of teachers with under five and five to fourteen years of experience suggests that these groups are similar in regard to their extent of use of instructional practices. In addition, these results are similar to Ross' findings on the adoption of educational innovations (supra: 32).

Table 5.4

Relationship between Experience and Use of
Instructional Practices

Group	Years of Experience	N	VP ₁ mean	VP ₂ mean	VP _T mean
1	under 5	458	48.2	38.9	43.6
2	5 - 14	321	44.6	38.6	41.6
3	over 14	181	39.7	34.2	36.8
	F ratio		10.36	2.19	7.37
	Significance		.001	NS	.05
	Sig. dif. groups		1 and 3 2 and 3		1 and 3 2 and 3

Amount of Education

The amount of education was measured by number of years of academic and professional training beyond grade twelve completed by the teacher. For purposes of this analysis the teachers in the sample were classified into three categories of post-secondary education: 2 years or less, 3 to 4 years, and 5 years or more.

Findings. The mean variety of practices ratios obtained by teachers classified by years of post-secondary education are reported in Table 5.5. There were no significant differences between the three categories of training on either of the two sub-scales or the total score.

Discussion. These findings demonstrate that for this sample no relationship exists between amount of post-secondary education and extent of use of a variety of instructional practices as this was measured in the present study.

These findings are not consistent with the findings of studies reported on the adoption of educational innovations. Generally the amount of education has been reported to be positively associated with the adoption of newer educational practices (supra: 33). However there was no significant relationship in the present study between the amount of education and the extent of use of a variety of newer educational practices as measured by the variety of practices ratios.

Table 5.5

Relationship between Amount of Education and Use of
Instructional Practices

Group	Years of Training	N	VP ₁ mean	VP ₂ mean	VP _T mean
1	2 or less	170	44.1	36.6	40.3
2	3 - 4	597	46.0	38.0	42.0
3	5 or more	193	44.9	38.8	41.8
	<u>F</u> ratio		0.55	0.32	0.45
	Significance		NS	NS	NS

Recency of Education

Two separate analyses were undertaken to assess the possible relationship between recency of training and use of instructional practices. This was done to take account of the two methods by which teachers acquired their training: attending a university full-time, and attending a university part-time by taking courses in a summer session or an evening credit program. The teachers in the sample were divided into four groups in terms of the most recent year they attended university. The groups were comprised as follows: group 1 - never; group 2 - 1964 or earlier; group 3 - 1965 or 1966; and group 4 - 1967 or 1968.

Findings. The mean variety of practice ratios obtained by teachers classified respectively by recency of full-time attendance at university and by recency of part-time attendance at university are reported in Tables 5.6 and 5.7. However significant differences were found only between the groups of teachers classified by recency of part-time

attendance.

Table 5.6 reveals that a significant F ratio was found on the total score (VP_T). The application of the Scheffe method, in this case, revealed that no significant differences at the .05 level of confidence existed between any pair of the four groups of teachers.

Table 5.7 illustrates that significant differences were found on all three scales between group 2 (1964 or earlier) and group 4 (1967 or 1968). Also a significant difference was found on the total score, between group 3 (1964 or earlier) and group 4 (1965 or 1966); and on the instructional resources sub-scale between group 1 (never) and group 2 (1964 or earlier). In all cases the mean variety of practices ratios of group 2 were significantly lower.

Discussion. The results presented in Table 5.6 suggest that there are no significant differences between teachers when they are classified by recency of full-time attendance at university. Also the findings reported in Table 5.7 suggest rather inconclusive results in regard to the relationship between recency of attending summer session or evening credit programs and the variety of instructional practices used by teachers in the sample. Thus it appears that there are no significant differences between the use of instructional practices by teachers when classified by recency of training.

Table 5.6

Relationship between Recency of Full-time University
Attendance and Use of Instructional
Practices

Group	Year	N	VP ₁ mean	VP ₂ mean	VP _T mean
1	Never	281	45.1	36.0	40.7
2	1964 or earlier	231	44.1	36.6	40.3
3	1965 or 1966	139	47.8	40.4	44.2
4	1967 or 1968	259	47.6	40.9	44.3
	<u>F</u> ratio		1.68	2.19	2.81
	Significance		NS	NS	.05
	Sig. dif. groups				none

Table 5.7

Relationship between Recency of Part-time University
Attendance and Use of Instructional
Practices

Group	Year	N	VP ₁ mean	VP ₂ mean	VP _T mean
1	Never	241	48.0	36.0	42.1
2	1964 or earlier	151	41.7	34.4	38.2
3	1965 or 1966	130	42.1	34.7	38.5
4	1967 or 1968	438	47.2	41.6	44.4
	<u>F</u> ratio		4.53	4.75	5.36
	Significance		.05	.05	.05
	Sig. dif. groups		1 and 2 2 and 4	2 and 4	2 and 4 3 and 4

Specialization

The relationship between the degree of teacher specialization and the extent of use of a variety of practices was examined in two separate analyses. For the analyses teachers were classified first by number of courses they had completed in their major subject area of assignment and then by the percentage of time they were teaching in their major subject area of assignment.

Number of courses in major subject area of assignment. Table 5.8 compares the mean variety of practices ratios of the teachers in the sample classified by number of courses completed in their major subject area of assignment. Three categories were used in the analysis, namely, 3 courses or fewer, 4 to 7 courses, and 8 or more courses. The results show that the teachers who completed 8 or more courses had a significantly higher mean variety of practices ratio than teachers in the other two groups on all three scales.

An examination of the data in Table 5.8 reveals that the size of the mean variety of practices ratios of teachers increases as the number of courses increases. In addition the mean variety of practices ratios of teachers with eight or more courses in their major subject field are significantly higher than those of teachers who completed 3 or fewer and 4 to 7 courses on all three scales. In view of the results presented in Table 5.8 it may be concluded that there is a relationship between the extent of use of a variety of practices and the number of courses completed in the teacher's major subject area of assignment.

Table 5.8

Relationship between Number of Courses in Major
Subject Area of Assignment and Use of
Instructional Practices

Group	Number of Courses	N	VP ₁ mean	VP ₂ mean	VP _T mean
1	3 or fewer	358	43.1	35.7	39.3
2	4 - 7	379	44.7	37.0	40.9
3	8 or more	223	50.3	43.0	46.7
	F ratio		7.94	5.65	9.88
	Significance		.001	.05	.001
	Sig. dif. groups		1 and 3 2 and 3	1 and 3 2 and 3	1 and 3 2 and 3

Percentage of time teaching in major subject area of assignment.

Table 5.9 compares the mean variety of practices ratios obtained by teachers classified by the percentage of time they teach in their major subject area of assignment. Significant differences were found on the organizational practice sub-scale (VP₂) and the total score (VP_T). In both cases the teachers who taught 75 percent or more of the time in their major subject area of assignment had a significantly higher variety of practices ratio than the group who taught 50 to 74 percent of the time in their major subject field.

The findings presented in Table 5.9 indicate that the extent of use of practices teachers make appears to be related to the percentage of time they spend teaching in their major subject area of assignment. In addition, an examination of the mean variety of practices ratios indicates that the relationship tends to be curvilinear, with teachers in the middle group

having the lowest mean variety of practice ratios on all the scales. However since the differences were not statistically significant no valid conclusion can be drawn about the relationship between the variety of instructional practices teachers use and the percentage of time they spend teaching in their major subject area of assignment.

Table 5.9

Relationship between Time Spent in Major Subject
Area of Assignment and Use of
Instructional Practices

Group	Percentage of time	N	VP ₁ mean	VP ₂ mean	VP _T mean
1	49 or less	190	46.6	36.1	41.4
2	50 - 74	333	43.7	34.5	39.1
3	75 or more	437	46.2	41.3	43.6
	F ratio		1.56	6.64	4.88
	Significance		NS	.05	.05
	Sig. dif. groups			2 and 3	2 and 3

Mobility

In this part of the analysis, only teachers who had five or more years of teaching experience were included in the tests of differences between teachers classified by mobility. Since the teachers with fewer than five years of experience presumably did not have the same opportunity for movement as those with more than five years of experience, the former category of teachers was omitted from this analysis.

The differences in mean variety of practice ratios of teachers were tested for two measures of mobility. Teachers were classified

according to the number of different systems in which they had taught and then according to the number of different schools in which they had taught.

Findings. In Tables 5.10 and 5.11 the results of tests of differences on mean variety of practices ratios for teachers grouped by both measures of mobility are reported. The results of the tests reveal that no significant differences were found between mean variety of practice ratios on any of the three scales.

Discussion. These findings indicate that the extent of use of instructional practices by teachers is not affected significantly by the number of different schools or school systems they have taught in. Thus in the present study there tends to be no differences between the use of instructional practices by teachers when classified by mobility.

Table 5.10

Relationship between System Mobility and Use of
Instructional Practices

Group	Number of Systems	N	VP ₁ mean	VP ₂ mean	VP _T mean
1	1	102	42.0	34.5	38.2
2	2	138	42.7	40.9	41.6
3	3	125	44.9	36.3	40.6
4	4 or more	136	41.6	35.7	38.6
	F ratio		0.52	1.33	0.73
	Significance		NS	NS	NS

Table 5.11

Relationship between School Mobility and Use of
Instructional Practices

Group	Number of Schools	N	VP ₁ mean	VP ₂ mean	VP _T mean
1	3 or fewer	197	41.9	39.1	40.3
2	4 - 5	211	44.3	36.6	40.5
3	6 or more	93	40.9	35.6	38.2
	<u>F</u> ratio		0.93	0.60	0.42
	Significance		NS	NS	NS

Subject Area of Assignment

Findings. In Table 5.12 the mean variety of practices ratios of teachers classified by the major subject field in which they teach are reported. Significant F ratios were obtained on all three instructional practices scales. The mean ratio for mathematics teachers was significantly lower than the mean ratios of English, social studies and science teachers on all instructional practice scales. There were no significant differences found among the mean variety of practices ratios of English, social studies or science teachers.

Discussion. From the results of these analyses it appears that English, science and social studies teachers use a variety of practices to about the same degree. This might be expected as in each of these subjects several references and a variety of instructional materials are typically employed. In addition science and social studies offer varying opportunities for project work on the part of the students. Moreover,

since these subjects tend to involve more collection of and reproduction of materials, teachers may use clerical aides to a greater extent than do mathematics teachers.

The significant differences between the mathematics teachers and the other teachers may also be explained by the nature of the subject. Mathematics tends to be characterized by specific facts and concepts all of which are contained in a prescribed textbook. Thus teachers might tend to depend more on the use of the textbook and less on the use of other materials such as those found in the library or instructional materials centre. Also since mathematics instruction typically focuses on problems, the project method of instruction may not be as necessary or relevant.

Table 5.12

Relationship between Subject Area of Assignment and
Use of Instructional Practices

Group	Subject	N	VP ₁ mean	VP ₂ mean	VP _T mean
1	Social studies	224	50.4	39.9	45.3
2	English	318	47.5	41.0	44.1
3	Mathematics	227	36.6	31.4	33.9
4	Science	191	46.6	38.2	42.4
	<u>F</u> ratio		18.63	6.52	16.40
	Significance		.001	.001	.001
	Sig. dif. groups		1 and 3 2 and 3 4 and 3	1 and 3 2 and 3 4 and 3	1 and 3 2 and 3 4 and 3

SYSTEM VARIABLES AND EXTENT OF USE OF INSTRUCTIONAL PRACTICES

The system variables selected for the present study included type of administrative unit, type of school, size of school, and number of different pupils taught per week. The following analysis seeks to answer the sub-problem of:

Sub-problem 3: What relationship exists between the extent of use of selected instructional practices by junior high school teachers and certain characteristics of the school system in which they teach?

Type of Administrative Unit

Findings. Table 5.13 compares the mean variety of practices ratios of city teachers and non-city teachers. There were no significant differences between the two types of administrative unit on either of the two sub-scales or on the total score.

Discussion. The mean scores of the non-city teachers were lower than those of the city teachers but the differences were not significant. The absence of a significant difference between city and non-city teachers may be attributed in part to the method of sampling. Since the teachers selected for the sample had at least four of the six instructional resources available for their use in their school, the differences between the teachers in the two types of administrative units may have been considerably reduced. To be more specific, perhaps a difference does exist but it may be related directly to the differences in resources available in

the two types of systems. However the scales and sampling technique have corrected for differences of this type. Thus, when the resources available seem to be equal the use of these resources by city and non-city teachers tends to be about the same.

Table 5.13

Relationship between Type of Administrative Unit and
Use of Instructional Practices

Group	Administrative Unit	N	VP ₁ mean	VP ₂ mean	VP _T mean
1	City	637	45.9	38.4	42.1
2	Non-city	323	44.3	36.7	40.5
	F ratio	1.15	0.76	1.50	1.50
	Significance		NS	NS	NS

Type of School

Findings. Table 5.14 compares the mean variety of practices ratios of teachers classified by type of school. Significant differences between the means were found on all three scales. In all cases the teachers in the sample who taught in junior high schools obtained greater mean variety of practices ratios.

Discussion. The findings in Table 5.14 illustrate the type of school in which a teacher works significantly affects the variety of instructional practices he uses. This may be explained by the degree of specialization of teachers in the various types of schools. The findings on specialization in the present study indicate that a teacher who has completed many courses in the major subject field he was assigned to

uses a significantly greater variety of practices. Moreover, considering the teachers in the sample of junior high schools may have a smaller range of grades to teach it may well be that they are assigned to the subject area they are trained for to a higher degree than teachers of the other types of schools.

Table 5.14

Relationship between Type of School and Use of
Instructional Practices

Type of School	N	VP ₁ mean	VP ₂ mean	VP _T mean
Junior high	468	47.0	41.5	44.1
Others	492	43.9	34.6	39.3
F ratio		5.16	16.38	14.19
Significance		.05	.001	.001

Size of School

Findings. Table 5.15 compares the mean variety of practices ratios for teachers in the sample classified by size of school. The results of the analysis illustrate that no significant differences were found on any of the three scales.

Discussion. The research evidence reported in Chapter 2 indicated that a system variable such as size is related to the adoption of newer instructional practices (supra:34). However, in the present study it appears that school size is not related to the variety of instructional practices used by teachers in the schools. Therefore it is concluded that

when teachers are classified by the size of the school in which they work, no significant differences exist between them and their use of instructional practices.

Table 5.15

Relationship between Size of School and Use of
Instructional Practices

Group	Size of School	N	VP ₁ mean	VP ₂ mean	VP _T mean
1	12 or fewer	46	46.7	35.3	40.9
2	13 - 24	331	45.2	37.6	41.4
3	24 or more	583	45.4	38.3	41.8
	F ratio		0.10	0.31	0.08
	Significance		NS	NS	NS

Number of Different Pupils Taught per Week

Findings. A comparison of the mean variety of practices ratios for teachers classified by number of different pupils taught per week is presented in Table 5.16. Significant differences were found on the organizational practices sub-scale and the total score. In both cases the group of teachers who taught two hundred or more different students per week had a significantly higher variety of practices ratio than the groups who taught 100 - 149 or 150 - 199 different students per week. Also on the organizational practice sub-scale the group who taught two hundred or more students had a significantly higher variety of practices ratio than the groups who taught fewer students during the week.

Discussion. The findings in Table 5.16 reveal that teachers in the sample who teach up to 199 different students during the week use a variety of instructional practices to about the same degree. However, teachers who teach two hundred or more different students per week use a significantly greater variety of instructional practices as measured in the present study.

The teachers teaching over two hundred different students per week may be involved in team teaching or in teaching many classes in a departmentalized school. In the former case it is understandable that team teachers would receive a higher score on the organizational practices sub-scale since team teaching is characterized by various plans of grouping students and individual student projects, and also team teaching is one of the practices included in the scale. Moreover, the number of teachers who made extensive use of team teaching was nearly the same as the number of teachers who taught more than two hundred different students per week. Hence, it is suggested that team teaching may be a factor which has contributed to the differences noted in the analysis.

Table 2.1

Approximate Estimated Number of Domestic Students
 Enrolled per Year and Age in Institutional
 Facilities

Grade	Number of Students	% Male	% Female	% Total
1	24,000 - 25,000	45.0	55.0	50.0
2	24,000 - 25,000	45.0	55.0	50.0
3	25,000 - 26,000	44.4	55.6	50.0
4	26,000 - 27,000	44.2	55.8	50.0
5	26,000	44.0	56.0	50.0
6	26,000	44.0	56.0	50.0
7	26,000	44.0	56.0	50.0
8	26,000	44.0	56.0	50.0
9	26,000	44.0	56.0	50.0
10	26,000	44.0	56.0	50.0
11	26,000	44.0	56.0	50.0
12	26,000	44.0	56.0	50.0

Chapter 6

SUMMARY, CONCLUSIONS AND IMPLICATIONS

This chapter presents a review of the entire study. Included are the statement of the problem investigated, a description of the instrumentation and methodology used, and a description of the sample. In addition the chapter contains the conclusions reached and the implications drawn from the findings of the study.

SUMMARY OF THE STUDY

The Problem

The central problem of this study was to determine whether a relationship exists between the extent of use of selected instructional practices and certain teacher, school and system characteristics. The problem was restated as three sub-problems:

1. What relationship exists between the extent of use of selected instructional practices by junior high school teachers and certain personal characteristics of these teachers?
2. What relationship exists between the extent of use of selected instructional practices by junior high school teachers and certain professional characteristics of these teachers?
3. What relationship exists between the extent of use of selected instructional practices by junior high school teachers and certain characteristics of the school system in which they teach?

The teacher characteristics selected for the present study included the following: age, sex, marital status, experience, amount and recency of post-secondary education, major subject area of assignment, degree of specialization, and extent of teacher mobility.

The system variables selected for the study were type of school, size of school, type of administrative unit, and number of different students taught by the teacher during a week.

The analysis of the problem began with a review of literature in two areas: literature on each of the instructional practices selected for the study for the purpose of determining whether it is desirable that teachers use a variety of these practices; and, literature on the findings of research projects focusing on the adoption of educational innovations to determine what relationships exist between the adoption of newer educational practices and the characteristics of teachers and of the systems in which they teach. The literature review revealed that teacher use of a variety of the selected instructional practices was well documented by several prominent educators. However, little indication of the type and direction of relationships which exist between the extent of use of instructional practices and the teacher and system characteristics selected for the present study was given in the literature.

Instrumentation and Methodology

The major objective of this study was to determine whether a relationship exists between teacher and system characteristics and the extent of use of selected instructional practices by junior high school classroom teachers. In order to attain this objective it was necessary

to develop an instructional practices scale which would measure the extent to which teachers are using the instructional practices selected for the study.

Ten instructional practices were selected for the present study. These practices were categorized into two groups, namely, instructional resources and organizational practices. The practices categorized as resources included clerical aides, teacher aides, consultative personnel, guidance counsellors, libraries and instructional materials centres. The practices identified as organizational practices were team teaching, intra-class ability grouping, intra-class grouping by criteria other than ability, and the project method of instruction.

Two sub-scales were developed to measure extent of use of each of the two types of instructional practices; the sub-scale scores were also combined to yield a total instructional practices score. Since availability of some of the selected instructional practices was bound to affect teacher use of them it was necessary to design the scales to correct for these effects. To illustrate, the instructional resources selected for study could be used by individual teachers only if they were available in the school. Thus ratios of the extent of use of the practices which corrected for the number of practices available were used in all the calculations.

The data used in the present study had been gathered in a study directed by Ratsoy for the Alberta Advisory Committee for Educational Studies in May of 1969. Approximately 90 percent of Alberta teachers completed and returned the questionnaires used in the data gathering. The questionnaire contained fifty-nine items which required the respondents

to give information on their personal and professional characteristics, the characteristics of the school and school system in which they were teaching, and the availability of and use they made of selected instructional practices.

In preparation for the analysis the instructional practices scores were computed, and variety of practices ratios calculated for each teacher. The statistical tests included: Person product-moment correlations and a stepwise regression analysis to test the relationships between the selected variables of the study; and, one-way analysis of variance to test the differences in extent of use of instructional practices between teachers when classified by each of the selected teacher and system variables. The level of significance for the statistical tests was set a priori at the .05 level of confidence.

The Sample

The sample for the present study consisted of the Alberta junior high classroom teachers who had at least four of the six instructional resources available for their use in the school in which they were teaching. In addition their major subject area of assignment was social studies, English, mathematics or science. Of the 1,064 teachers who qualified on these grounds, 104 had returned incomplete questionnaires. Thus, the final sample contained 960 junior high school classroom teachers.

Results

In order to facilitate data analysis the problem was restated as three sub-problems. The three sub-problems and results of the analysis are as follows:

Sub-problem 1: What relationship exists between the extent of use of selected instructional practices by junior high school teachers and certain personal characteristics of these teachers?

Personal characteristics. Significant differences between sub-groups in the extent of use of instructional practices were found when teachers were classified by age and sex. On all three scales teachers under age twenty-six and between twenty-six to thirty-five years of age were found to make more extensive use of a variety of instructional practices than teachers over thirty-five years of age. The female teachers in the sample made more extensive use of a variety of practices than did males on two of the scales. Females received higher ratios on the instructional resources sub-scale and on the total score than the males of the sample.

When teachers were classified by marital status no significant differences were found between the teachers who were single and those who were married.

Sub-problem 2: What relationship exists between the extent of use of selected instructional practices by junior high school teachers and certain professional characteristics of these teachers?

Professional characteristics. A total of six professional characteristics of teachers were selected for the study. The results of the analyses indicated that only three of these six, namely, teaching experience, degree of specialization, and major subject area of assign-

ment were related to the extent of use of a variety of instructional practices by teachers in the sample.

The mean scores of teachers with fewer than fifteen years of experience were statistically higher than those of teachers with more than fifteen years of experience on the instructional resource subscale and on the total score. Thus the variable of teaching experience seemed to be related to the extent of teacher use of a variety of instructional resources.

The degree of specialization, measured by the number of courses completed in the field of assignment and the percentage of time spent teaching in major subject area of assignment seemed to be related to the extent of teacher use of a variety of instructional practices. Teachers who had completed eight or more courses and taught more than 75 percent of the time in their major subject area of assignment used a variety of instructional practices to a greater degree than teachers who were less specialized.

Teachers classified by major subject area of assignment differed in extent of use of a variety of instructional practices on all three scales. The results of the analysis revealed that mathematics teachers do not use variety in the instructional practices they use to the same degree that English, social studies and science teachers do.

The professional characteristics of amount and recency of postsecondary education, and teacher mobility appeared to be not related to the extent of teacher use of a variety of practices.

Sub-problem 3: What relationship exists between the extent of use of selected instructional practices by junior high school teachers and certain characteristics of the school system in which they teach?

System variables. The comparison between mean variety of practices ratios for the teachers in the sample, when classified by system variables, revealed that two of the five system variables appear to be related to the extent of teacher use of instructional practices. Teachers in junior high schools used a variety of practices to a greater degree than did teachers in the other types of schools. Also teachers in the sample who taught two hundred or more different students per week used a variety of instructional practices to a greater degree than teachers who taught fewer students.

Teachers classified by type of administrative unit and by size of school did not differ significantly in the extent of use of a variety of instructional practices.

CONCLUSIONS

The conclusions presented here were arrived at on the basis of evidence from the present study. There is some evidence in the present study which indicates that teacher characteristics and system variables are related to the extent of teacher use of a variety of instructional practices. Such personal characteristics as sex and age appear to be related to use of a variety of specific types of instructional practices. The professional characteristics of experience, degree of specialization

and major subject area of assignment also seem to be related to the variety of practices used by teachers. In addition system variables such as type of school and number of students taught tend to be related to extent of teacher use of a variety of practices.

Generalizing from the results, it is possible to describe major "type" of teachers in the study.

1. The typical junior high school classroom teacher who makes extensive use of a variety of instructional practices tends to be female, be under 35 years of age, have four or fewer years of teaching experience, teach social studies in a junior high school and have completed eight or more courses in the major subject area of assignment.

2. The typical junior high school classroom teacher who makes extensive use of a variety of organizational practices tends to be under 35 years of age, teach English in a junior high school, teach over two hundred different students per week, have completed eight or more courses in the major subject area of assignment and spends more than 75 percent of the time in the major subject area of assignment.

In conclusion the typical teacher who makes extensive use of a variety of instructional practices as measured by the total instructional practices scale tends to be female, be under 35 years of age, have fewer than fifteen years of experience, have completed more than eight courses in her major subject area of assignment and spends more than 75 percent of her teaching time in her major subject area of assignment. This teacher appears to be teaching social studies in a junior high school and teaching more than two hundred different students per week.

IMPLICATIONS

The following implications are derived from the findings of the present study. It is suggested that school principals, school boards and universities could be assisted in their efforts to improve the quality of education by the knowledge of relationships discovered in this study. In addition suggestions for future research are discussed.

Implications for School Principals

Since the administrator of the school is the instructional leader it is his responsibility to see that teachers are aware of newer instructional practices and the merit of making extensive use of a variety of such practices. Thus the principal is faced with the problem of how to encourage teachers to use a variety of newer practices.

On the basis of the results in the present study it is suggested that principals consider such variables as sex, age, teaching experience, subject area of assignment and degree of specialization when he is attempting to encourage teachers to use a variety of instructional practices. There seems to be a need to encourage older and more experienced teachers to make more extensive use of a variety of instructional practices. The differences between subject areas seem to indicate either that teachers in some subject areas should be encouraged to make use of a greater variety of practices or that they should be encouraged to make more extensive use of certain practices which are relevant to the specific subject area. Finally from the apparent effect that specialization has on the extent of teacher use of a variety of instructional practices used by

teachers it is suggested that principals consider assigning teachers to the subject area in which they have completed the greatest number of courses.

Implications for School Boards

Several implications for school boards can be drawn from the findings of this study as well. The evidence in this study suggests that type of school, age and experience of teachers, and number of different pupils taught per week are related to the variety of instructional practices used by teachers. In this context school boards as educational planners might consider building schools which stimulate teachers to use a greater variety of instructional practices such as pure junior high schools. In addition school boards should consider hiring teachers who are younger with a minimum of teaching experience. Moreover they might encourage a greater degree of departmentalization or team teaching in the school in view of the finding that teachers who teach greater numbers of different students during a week tend to make more extensive use of instructional practices.

Implications for Universities

The main influence of universities on teacher performance is through the training programs provided by the universities. Consequently the implications for universities are drawn from differences which were evident between various categories of amount of post-secondary education.

The lack of significant differences in use of instructional practices between teachers when classified by amount and recency of training indicates that university programs may not have the effect of

encouraging teachers to use a variety of instructional practices. In this context it is suggested that universities might consider providing programs that will have the effect of encouraging teachers to use a variety of instructional practices to a greater degree. From the finding that teachers who have completed eight or more courses in their major subject area of assignment use a great variety of instructional practices it is suggested that universities encourage teachers to become more specialized in their major subject field.

Implications for Further Research

The findings of the present study have shown that certain characteristics of teachers appear to be related to the extent of teacher use of a variety of instructional practices. The evidence in this study also indicates the need for further research. This additional research might investigate relationships between teacher characteristics and system variables on one hand and on the other hand, the use of instructional practices by teachers at the high school level and elementary school level. It is suggested that subjects other than social studies, English, mathematics and science be investigated as well.

Additional research should include other teacher characteristics and system variables as well. The stepwise regression analysis done with the present data revealed that the greatest amount of variance that could be accounted for with the variables selected was 6 percent. Thus it is suggested that other variables such as the type of instructional organization and design of the school plant may be included in further research projects.

The instructional practices scales developed for the present study appear to discriminate meaningfully between different categories of junior high school teachers. However, replications of this study should be undertaken to further test the validity and reliability of this scale. It is suggested that this study should be repeated in other Canadian provinces where similar practices are being used in junior high schools. Finally, this study should also be repeated in Alberta at the junior high level with the addition of more instructional practices to further test the validity and reliability of the instructional practices scale.

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APPENDIX

REPLICATION OF CAMERON COMMISSION STUDY OF ALBERTA TEACHING FORCE

The Alberta Royal Commission on Education, recognizing the key position held by teachers in Alberta education, conducted a detailed survey in 1958 of the status of teachers and teaching in the Province.

A replication of this study of the Alberta teaching force is being sponsored and conducted by the Alberta Advisory Committee for Educational Studies. In addition to the replication items, others have been added which are designed to reflect some of the changes which have occurred since 1958. The Committee has the support and participation of the ALBERTA FACULTIES OF EDUCATION, DEPARTMENT OF EDUCATION, ALBERTA FEDERATION OF HOME AND SCHOOL ASSOCIATIONS, ALBERTA TEACHERS' ASSOCIATION and the ALBERTA SCHOOL TRUSTEES' ASSOCIATION.

Your careful and prompt reply is essential in this replication of the Commission's work. The information obtained through this report will be kept strictly confidential. Your name and address are required only to facilitate checking. The returned forms will be seen by only a few research members, while the findings of the survey will be published in summary form so that individual teachers cannot be identified.

The committee requests all educators employed by school boards in the province to return a completed report to their Principal or Superintendent of Schools as soon as possible, but not later than May 9, 1969.

Your Name (Mr. Mrs. Miss) SURNAME (PRINT) CHRISTIAN NAMES

Maiden Surname Religious Name
(IF WOMAN WHO HAS MARRIED) (IF MEMBER OF A RELIGIOUS ORDER)

Name of School School Division, District or County

The questions in this survey are contained on pages designed for processing on an IBM 1230 Optical Scanner. The directions for completing the questionnaire are as follows:

1. Use only an HB pencil to record your response.
2. Indicate your response to each item by placing a mark between the guidelines preceding the alternative which best describes your employment or status from among the alternatives to the question.

Under 10	20 to 29
10 to 19	30 or more

3. Answer every question.
4. Mark only one response to each question.
5. Do not fold the questionnaire.

A 1	B 2	C 3	D 4	E 5	F 6	G 7	H 8	I 9	J 10	A 1	B 2	C 3	D 4	E 5	F 6	G 7	H 8	I 9	J 10
A 1	B 2	C 3	D 4	E 5	F 6	G 7	H 8	I 9	J 10	A 1	B 2	C 3	D 4	E 5	F 6	G 7	H 8	I 9	J 10
A 1	B 2	C 3	D 4	E 5	F 6	G 7	H 8	I 9	J 10										

1. Which of the following most nearly describes the position you hold in your school system this year?

Classroom teacher, giving all or nearly all of time to classroom teaching.	Vice-principal or assistant principal, teaching half time or more.	Supervisor, coordinator or consultant of a subject field, grade(s) or division(s) working in or from the district, division or county office.
Part-time, temporary, or substitute teacher.	Vice-principal or assistant principal, teaching less than half time or not teaching.	Counsellor or psychologist working in or from the district, division, or county office.
Department Head, grade coordinator or consultant assigned to one school.	Principal, teaching half time or more.	Coordinator or consultant of a subject field or grade(s) assigned to two or more schools (not working from the district, division or county office).
Counsellor, teaching half time or more.	Principal, teaching less than half time.	Superintendent.
Counsellor, teaching less than half time or not teaching.	Non teaching principal.	Assistant or deputy superintendent.
Librarian, teaching half time or more.	Director or coordinator of a special service (personnel, A/V materials, research, public relations, etc.) working in or from the district, division or county office.	Other.
Librarian, teaching less than half time or not teaching.		

2. In which DIVISION(S) does your MAIN responsibility this year lie?

Primary (K to III)	Senior High (X to XII)	Junior and Senior High
Intermediate (IV to VI)	Both Primary and Intermediate	Elementary, Jr. and Sr. High
Junior High (VII to IX)	Elementary and Junior High	Junior College

3. In which GRADE do you do MOST teaching this year?

One	Five	Nine	Kindergarten	Equally in 2 or more Sr. High grades
Two	Six	Ten	Equally in 2 or more Elementary grades	Junior College
Three	Seven	Eleven	Equally in 2 or more Jr. High grades	No regular teaching
Four	Eight	Twelve		

4. How many HOURS PER WEEK do you spend IN CLASSROOM TEACHING? (Exclude time spent counselling, supervising, etc.)

None	Over 5 to 10 hours	Over 20 to 25 hours
Under 2 hours	Over 10 to 15 hours	Over 25 to 30 hours
2 to 5 hours	Over 15 to 20 hours	Over 30 hours

5. What is the ENROLMENT of the LARGEST CLASS that you teach? If you supervise some pupils while teaching others, consider a class to be the total number of pupils for whom you have sole charge in your room at any one time.

Under 10	16 to 20	26 to 30	36 to 40	Over 45
11 to 15	21 to 25	31 to 35	41 to 45	No regular classroom teaching

6. What is the ENROLMENT of the MEDIAN-SIZED (Middle-sized) CLASS you teach? Class defined as in Question 5. If you teach only one class, mark same response as in Question 5.

Under 10	16 to 20	26 to 30	36 to 40	Over 45
11 to 15	21 to 25	31 to 35	41 to 45	No regular classroom teaching

7. What is the total number of DIFFERENT PUPILS that you teach in a week?

Under 30 pupils	50 to 99 pupils	200 to 299 pupils	No regular teaching
30 to 39 pupils	100 to 149 pupils	300 to 399 pupils	
40 to 49 pupils	150 to 199 pupils	400 or more	

A 1	E 2	C 3	D 4	E 5	F 6	G 7	H 8	I 9	J 10	A 1	E 2	C 3	D 4	E 5	F 6	G 7	H 8	I 9	J 10
A 1	E 2	C 3	D 4	E 5	F 6	G 7	H 8	I 9	J 10	A 1	E 2	C 3	D 4	E 5	F 6	G 7	H 8	I 9	J 10
A 1	E 2	C 3	D 4	E 5	F 6	G 7	H 8	I 9	J 10	2									

8. In what TYPE OF SCHOOL do you work? For question 8 and 9 consider YOUR SCHOOL to be the organization under the direct responsibility of your Principal.

Not assigned to one school (ie., work in or from central office or in several schools).	Junior High School (has some or all of Grades VII or IX but no grades below VII or above IX).	Elementary and Junior High
Elementary (School has some or all of Grades I to VI, but no grade above VI).	Senior High School (School has some or all of Grades X to XII but no grades below X).	Elementary, Jr. and Sr. High
		Junior High and Senior High
		Other

9. How many TEACHERS (full-time equivalent) teach in the SCHOOL in which you teach? Include the principal and yourself.

1 Teacher	9 to 12 teachers	25 to 49 teachers	I am not assigned to one School
2 or 3 teachers	13 to 18 teachers	50 to 99 teachers	
4 to 8 teachers	19 to 24 teachers	100 or more teachers	

10. By what TYPE OF ADMINISTRATIVE UNIT are you employed? If by a Division or County, mark the first alternative. If by an Independent (Non-Divisional) District, mark an alternative other than "School Division or County".

School Division or County	Rural School Dist. (not RC Sep.)	Federal Indian School
City District (not RC Sep.)	City District (RC Sep.)	D.N.D. School
Town District (not RC Sep.)	Town District (RC Sep.)	Private School
Village District (not RC Sep.)	Village or Rural Dist. (RC Sep.)	Other
Consolidated Dist. (not RC Sep.)	Regional High School District	

11. What is the EXTENT of your TOTAL ACADEMIC and PROFESSIONAL PREPARATION BEYOND HIGH SCHOOL?

Less than a 1-year program (7 mos.) in a Normal School, Teachers' College or University.	Three complete years but less than four in a University and/or Teachers' College.	Five complete years but less than six in a University and/or Teachers' College.
Standard 1-year program (7 mos. or more) in a Normal School, Teachers' College or University.	Four complete years but less than five in a University and/or Teachers' College.	Six or more complete years in a University and/or Teachers' College.
Two complete years but less than three in a University and/or Teachers' College.		

12. For how many years of teacher education are you paid?

1 year but less than 2	4 years but less than 5	7 years or more
2 years but less than 3	5 years but less than 6	Years of teacher education are not used to calculate my salary.
3 years but less than 4	6 years but less than 7	

13. WHERE did you obtain your EARLIEST CERTIFICATION FOR TEACHING?

In Alberta	In England, Scotland or Wales	In Australia or New Zealand
In Saskatchewan	In the United States of America	In Asia
In another Canadian province	In Continental Europe	Somewhere not listed here

14. What is the HIGHEST UNIVERSITY DEGREE you hold?

No Degree	B. Sc.	Two or more Bachelor degrees	Other Master's
B. Ed.	Other Bachelor's Degree	M. Ed.	Ed. D. or Ph. D.
B. A.			Other

15. In what year, since starting to teach, did you last attend a university full-time (winter) session?

Before 1945	1950 to 1954	1955 to 1957	1958	1959
1945 to 1949	1957 to 1959	1960	1961	Never

A 1	B 2	C 3	D 4	E 5	F 6	G 7	H 8	I 9	J 10	A 1	B 2	C 3	D 4	E 5	F 6	G 7	H 8	I 9	J 10
A 1	B 2	C 3	D 4	E 5	F 6	G 7	H 8	I 9	J 10	A 1	B 2	C 3	D 4	E 5	F 6	G 7	H 8	I 9	J 10
A 1	B 2	C 3	D 4	E 5	F 6	G 7	H 8	I 9	J 10	3									

16. In what year, since starting to teach, did you last attend a credit course at a UNIVERSITY SUMMER SCHOOL or UNIVERSITY EVENING CREDIT PROGRAM?

Before 1945	1950 to 1954	1960 to 1964	1965	1969
1945 to 1949	1955 to 1959	1965	1967	Never

17. In what year, since starting to teach, did you LAST attend a NON-CREDIT course of at least 5 days' duration or 10 evenings or equivalent? (Include Short Course for Principals or similar non-credit summer or evening courses).

Before 1945	1950 to 1954	1960 to 1964	1965	1969
1945 to 1949	1955 to 1959	1965	1967	Never

18. For which area of specialization do you consider yourself MOST adequately prepared?

Reading	Mathematics	Home Economics	Vocational Subjects (Other than Business)
Social Studies	Science	Libraries	Counselling-Psych.
English	Fine Arts	Industrial Arts	Administration
French	Physical Education	Business Education	Exceptional Children
Language (Other than French or English)	Teaching or supervising Grades 1-2-3	Teaching or supervising Grades 4-5-6	Other

19. How many university undergraduate courses (or equivalent) have you completed in your specialization marked in 18?

1	2	3	4	5	6	7	8 or more	None
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20. How many university graduate courses have you completed in your specialization chosen in 18?

1	2	3	4	5	6	7	8 or more	None
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21. Which is your second field of specialization?

Reading	Mathematics	Home Economics	Vocational Subjects (Other than Business)
Social Studies	Science	Libraries	Counselling-Psych.
English	Fine Arts	Industrial Arts	Administration
French	Physical Education	Business Education	Exceptional Children
Language (Other than French or English)	Teaching or supervising grades 1-2-3	Teaching or supervising grades 4-5-6	No second field of specialization
			Other

22. How many university courses (or equivalent) have you completed in your specialization marked in 21?

1	2	3	4	5	6	7	8 or more	None
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23. Which field are you mainly assigned to during the PRESENT SCHOOL YEAR?

Reading	Mathematics	Home Economics	Vocational Subjects (Other than Business)
Social Studies	Science	Libraries	Counselling-Psych.
English	Fine Arts	Industrial Arts	Administration
French	Physical Education	Business Education	Exceptional Children
Language (Other than French or English)	Teaching or supervising grades 1-2-3	Teaching or supervising grades 4-5-6	Other

24. What proportion of your teaching week is devoted to the field you have marked in question 23?

Less than 10%	From 10 to 24%	From 25 to 49%	From 50 to 74%	From 75 to 89%	90% plus
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25. How many university courses (or equivalent) have you completed in the area of concentration marked in question 23?

1	2	3	4	5	6	7	8 or more	None
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F 6 G 7 H 8 I 9 J 10

A 1 B 2 C 3 D 4 E 5

F 6 G 7 H 8 I 9 J 10

A 1 B 2 C 3 D 4 E 5

F 6 G 7 H 8 I 9 J 10

A 1 B 2 C 3 D 4 E 5

F 6 G 7 H 8 I 9 J 10

A 1 B 2 C 3 D 4 E 5

F 6 G 7 H 8 I 9 J 10

4

26. You may be assigned to more than one field this school year. Which is your SECOND FIELD OF CONCENTRATION?

☐ Reading	☐ Mathematics	☐ Home Economics	☐ Vocational Subjects (Other than Business)
☐ Social Studies	☐ Science	☐ Libraries	☐ Counselling Psych.
☐ English	☐ Fine Arts	☐ Industrial Arts	☐ Administration
☐ French	☐ Physical Education	☐ Business Education	☐ Exceptional Children
☐ Language (Other than English or French)	☐ Teaching or supervising grades 4-5-6	☐ Teaching or supervising grades 1-2-3	☐ No second field of concentration
			☐ Other

27. What proportion of your teaching week is devoted to the field you have marked in Question 26?

☐ Less than 10%	☐ From 10 to 24%	☐ From 25 to 49%
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28. How many university courses (or equivalent) have you completed in the area of concentration marked in question 26?

☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6	☐ 7	☐ 8 or more	☐ None
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29. In which field would you PREFER to work?

☐ Reading	☐ Mathematics	☐ Home Economics	☐ Vocational Subjects (Other than Business)
☐ Social Studies	☐ Science	☐ Libraries	☐ Counselling Psych.
☐ English	☐ Fine Arts	☐ Industrial Arts	☐ Administration
☐ French	☐ Physical Education	☐ Business Education	☐ Exceptional Children
☐ Language (Other than English or French)	☐ Teaching or supervising grades 4-5-6	☐ Teaching or supervising grades 1-2-3	☐ Other

30. How many university courses (or equivalent) have you completed in the field of preference marked in question 29?

☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6	☐ 7	☐ 8 or more	☐ None
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31. How many different courses or subjects do you teach? (Elementary teachers count reading, art, etc. separately)

☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6	☐ 7	☐ 8 or more	☐ none regularly
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32. Counting the present school year, what is your TOTAL NUMBER of SCHOOL YEARS of full-time experience in the field of education as a teacher, administrator, counsellor, etc.

☐ 1	☐ 3-4	☐ 10-14	☐ 20-24	☐ Over 34
☐ 2	☐ 5-9	☐ 15-19	☐ 25-34	

33. Counting the present year, what is the number of years of full-time experience you have had IN THE SCHOOL SYSTEM where you are now employed?

☐ 1	☐ 3-4	☐ 10-14	☐ 20-24	☐ Over 34
☐ 2	☐ 5-9	☐ 15-19	☐ 25-34	

34. Counting the present year, what is the number of years of full-time experience you have had in the SCHOOL where you now hold a position?

☐ 1	☐ 3-4	☐ 10-14	☐ 20-24	☐ N/A
☐ 2	☐ 5-9	☐ 15-19	☐ Over 24	

35. Since you began teaching, in how many DIFFERENT school systems have you taught full time?

☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ Over 5
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36. Since you began teaching, in how many DIFFERENT schools have you taught full time?

☐ 1	☐ 3	☐ 5	☐ 7-10
☐ 2	☐ 4	☐ 6	☐ Over 10

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 A 1 B 2 C 3 D 4 E 5 F 6 G 7 H 8 I 9 J 10 A 1 B 2 C 3 D 4 E 5 F 6 G 7 H 8 I 9 J 10
 A 1 B 2 C 3 D 4 E 5 F 6 G 7 H 8 I 9 J 10 5

37. How many breaks of at least 1 school year have there been in your full-time teaching service?

☐ 1	☐ 2	☐ 3	☐ Over 3	☐ None
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38. What was the PRIMARY REASON for your most recent break in your teaching service?

☐ Further Study	☐ Marriage or full-time homemaking	☐ Forced resignation from teaching
☐ Ill Health	☐ Maternity or child rearing	☐ Other
☐ Non-teaching employment	☐ Husband transferred or moved	☐ No Breaks
☐ Military Service		

39. What is the TOTAL NUMBER OF YEARS AWAY FROM TEACHING referred to in question 37?

☐ 1	☐ 3 - 4	☐ 10 - 14	☐ 20 - 24	☐ None
☐ 2	☐ 5 - 9	☐ 15 - 19	☐ Over 24	

40. What were you doing in MARCH, 1968?

☐ Teaching in another Alberta system	☐ Working in education but not as a classroom teacher	☐ Working in a position in a field outside of education
☐ Teaching in this system	☐ Attending university or college	☐ Unemployed and seeking work
☐ Teaching outside Alberta	☐ Homemaking	☐ Other

41. What were you doing in MARCH, 1967?

☐ Teaching in another Alberta system	☐ Working in education but not as a classroom teacher	☐ Working in a position in a field outside of education
☐ Teaching in this system	☐ Attending university or college	☐ Unemployed and seeking work
☐ Teaching outside Alberta	☐ Homemaking	☐ Other

42. What do you expect to do in the SCHOOL YEAR 1969-70?

☐ Teach in another Alberta system	☐ Work in education but not as a classroom teacher	☐ Attend university full time for further training in teaching
☐ Teach in this system	☐ Work in a non-teaching position	☐ Be a full time homemaker
☐ Teach outside of Alberta	☐ Study full time in a field outside of teaching	☐ Other

43. Do you plan to REMAIN in the field of education until retirement?

☐ Yes	☐ Undecided, probably will	☐ Undecided, probably will not	☐ No
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44. Does your school have full or part-time clerical personnel (typist, filing clerk, etc.)?

☐ Yes, on a full-time basis and available to assist me	☐ Yes, on a part-time basis and available to assist me	☐ I am not assigned to one school or question does not apply
☐ Yes, on a full-time basis but not available to assist me	☐ Yes, on a part-time basis but not available to assist me	☐ No

45. What was your average use of clerical personnel in your school since September 1, 1968?

☐ Less than 1 hr./wk	☐ 3 to 5 hrs./wk	☐ 11 to 20 hrs./wk	☐ Over 40 hrs./wk
☐ 1 or 2 hrs./wk	☐ 6 to 10 hrs./wk	☐ 21 to 40 hrs./wk	☐ None or N.A.

46. What was your average use of teacher aides (non-certificated teachers' assistants other than clerical assistants) since September 1, 1968?

☐ None in this school	☐ 1 or 2 hrs./wk	☐ 11 to 20 hrs./wk	☐ Teacher aides are in the school but not available to assist me
☐ Less than 1 hr./wk	☐ 3 to 5 hrs./wk	☐ Over 20 hrs./wk	☐ Question does not apply
	☐ 6 to 10 hrs./wk		

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 A 1 2 3 4 5 F 6 7 8 9 10 A 1 2 3 4 5 F 6 7 8 9 10
 A 1 2 3 4 5 F 6 7 8 9 10

47. What was the extent, since September 1, 1968, of your use of consultative or advisory personnel who "specialize" in the subject(s) you teach?

☐ I do no regular teaching	☐ Available, not used	☐ 3 to 5 times	☐ 11 to 20 times
☐ None available	☐ Once or twice	☐ 6 to 10 times	☐ Over 20 times

48. How many student referrals were made by you to the counsellor or guidance officer since September 1, 1968?

☐ I do no regular teaching	☐ Available, no referrals	☐ 3 to 5 referrals	☐ 11 to 20 referrals
☐ None available	☐ 1 or 2 referrals	☐ 6 to 10 referrals	☐ Over 20 referrals

49. To what extent did you use ability grouping as initiated by yourself since September 1, 1968?

☐ I do no regular teaching	☐ Five or fewer times	☐ 11 times to 1. time	☐ $\frac{1}{2}$ to $\frac{3}{4}$ of the time
☐ No grouping used	☐ 6 to 10 times	☐ $\frac{1}{4}$ to $\frac{1}{2}$ of the time	☐ Over $\frac{3}{4}$ of the time

50. How often since September 1, 1968, did you use small groups in your teaching (other than ability grouping)?

☐ I do no regular teaching	☐ Once or twice	☐ 6 to 10 times	☐ Over 20 times
☐ None	☐ 3 to 5 times	☐ 11 to 20 times	

51. How often since September 1, 1968, did your students engage in projects of their own choosing during class time?

☐ I do no regular teaching	☐ Once or twice	☐ 6 to 10 times	☐ Over 20 times
☐ None	☐ 3 to 5 times	☐ 11 to 20 times	

52. What proportion of teaching time did you devote to team teaching (i.e., joint planning and instruction of two or more regular-sized classes of students) since September 1, 1968?

☐ I do no regular teaching	☐ Less than 10%	☐ 25 to 50%	☐ 76 to 95%
☐ No involvement	☐ 10 to 25%	☐ 51 to 75%	☐ Full time

53. Does your school have a library available to an entire class during regular class time?

☐ Yes, with a librarian who spends considerably more than half time in the library	☐ Yes, with a part-time librarian who spends about half-time in the library	☐ Yes, with a part-time librarian who spends one quarter time or less in the library
☐ Yes, but with no person designated as librarian	☐ Question does not apply	☐ No

54. How many times, since September 1, 1968, have you arranged for your class(es) to use the library during the school day as part of classroom activity?

☐ Question does not apply	☐ Once or twice	☐ 6 to 10 times	☐ Over 20 times
☐ Did not use	☐ 3 to 5 times	☐ 11 to 20 times	

55. How many times, since September 1, 1968, have you scheduled class activities in the material resources centre (other than the library)?

☐ Question does not apply	☐ No resources centre	☐ 3 to 5 times	☐ 11 to 20 times
☐ Did not use	☐ Once or twice	☐ 6 to 10 times	☐ Over 20 times

56. Please indicate your SEX

☐ Male ☐ Female

57. Please indicate your MARITAL STATUS

☐ Single ☐ Married
☐ Widowed ☐ Member of an R.C. religious order
☐ Divorced

58. Annual salary (before deductions) in effect in September.

☐ Under \$2,000	☐ \$10,001 to \$12,000
☐ \$2,000 to \$4,000	☐ \$12,001 to \$14,000
☐ \$4,001 to \$6,000	☐ \$14,001 to \$16,000
☐ \$6,001 to \$8,000	☐ Over \$16,000
☐ \$8,001 to \$10,000	

59. What is your AGE (nearest birthday)?

☐ Under 21	☐ 31 to 35	☐ 46 to 55
☐ 21 to 25	☐ 36 to 40	☐ 56 to 65
☐ 26 to 30	☐ 41 to 45	☐ Over 65

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